

BELLSOUTH REPLY COMMENTS

**WC Docket No. 04-313
CC Docket No. 01-338**

October 19, 2004

Attachment 10

BELLSOUTH APPENDIX

BELLSOUTH REPLY COMMENTS APPENDIX

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3. January 28, 2004 press release, "ACN Bundled Calling Provides New Choice for Louisiana Residents".

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January 30, 2004 press release, "ACN Bundled Calling Provides New Choice for Kentucky Residents".
4. August 18, 2004 *ex parte* letter to FCC Chairman Powell.
5. September 22, 2004 Study for U.S. Chamber of Commerce.
6. October 11, 2004 FPSC Order Closing Dockets, FPSC Docket Nos. 030851-TP and 030852-TP.
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BELLSOUTH APPENDIX

TAB 1

BEFORE THE FLORIDA PUBLIC SERVICE COMMISSION

In Re: Implementation of Requirements)	
Arising From Federal Communications)	Docket No.: 030851-TP
Commission Triennial UNE Review:)	
Local Circuit Switching for Mass)	Filed: October 30, 2003
Market Customers)	
_____)	

**MCI's RESPONSES AND OBJECTIONS TO
BELLSOUTH'S FIRST SET OF INTERROGATORIES (Nos. 1-84) AND
FIRST REQUESTS FOR PRODUCTION OF DOCUMENTS (Nos. 1-21)**

MCImetro Access Transmission Services, LLC and MCI WorldCom Communications, Inc. (hereinafter "MCI"), pursuant to the *Order Establishing Procedure*, Order No. PSC-03-1054-PCO-TP, issued September 22, 2003 (hereinafter "*Procedural Order*"), Rule 28-106.206 of the Florida Administrative Code, and Rules 1.280, 1.340, and 1.350 of the Florida Rules of Civil Procedure, hereby responds and objects to BellSouth Telecommunications, Inc.'s (hereinafter "BellSouth") First Set of Interrogatories and First Request for Production of Documents to MCI, served on October 9, 2003, and, to the extent necessary, hereby moves the Florida Public Service Commission (hereinafter the "Commission") for a protective order. Pursuant to the separate agreement between BellSouth and MCI, MCI is providing its responses today and will provide to BellSouth certain confidential information, identified below, pursuant to the separate protective agreement of the parties.

A. General Objections

MCI makes the following General Objections to BellSouth's First Set of Interrogatories and First Request for Production of Documents, including the applicable definitions and general instructions therein ("BellSouth discovery"), which, as appropriate, are specifically identified and incorporated into the relevant responses below.

instructions therein (“BellSouth discovery”), which, as appropriate, are specifically identified and incorporated into the relevant responses below.

15. MCI objects to the definition of “voice-grade equivalent lines,” and each and every interrogatory or request for production that includes such term, as this term is not used by MCI in the course of its business. Given MCI’s business records, MCI will answer such discovery by providing information regarding MCI’s DS0s.

16. MCI objects to each and every interrogatory or request for production that seeks information regarding enterprise customers as such discovery is irrelevant for purposes of this docket and is not reasonably calculated to lead to the discovery of admissible evidence since the scope of this proceeding, as set forth by the FCC and the Commission, is limited to local circuit switching for mass market customers.

17. MCI objects to each and every interrogatory or request for production that seeks information regarding non-switched services (e.g., services that do not depend on local Class 5 switches) except for non-switched services (e.g., DSL) provided on loops that are also used to provide switched services), as such discovery is irrelevant for purposes of this docket and is not reasonably calculated to lead to the discovery of admissible evidence since the scope of this proceeding, as set forth by the FCC and the Commission, is limited to local circuit switching for mass market customers.

18. MCI objects to each and every interrogatory or request for production that seeks information regarding MCI’s operations in ILEC service areas other than the BellSouth ILEC service area within the state of Florida as such information is irrelevant to BellSouth’s case in this docket and such discovery is overly broad and unduly burdensome.

BEFORE THE TENNESSEE REGULATORY AUTHORITY
Nashville, Tennessee

In Re: *Implementation of the Federal Communications Commission's Triennial Review Order (Nine-month Proceeding) (Switching)* Docket No. 03-00491

Implementation of the Federal Communications Commission's Triennial Review Order (Nine-month Proceeding) (Hot Cuts) Docket No. 03-00526

**MCI's OBJECTIONS TO BELL SOUTH'S FIRST SET OF
INTERROGATORIES (Nos. 1-84) AND FIRST REQUESTS FOR
PRODUCTION OF DOCUMENTS (Nos. 1-21)**

MCImetro Access Transmission Services, LLC, MCI WorldCom Communications, Inc. and Brooks Fiber Communications of Tennessee, Inc., (collectively "MCI"), pursuant to the October 21, 2003 *Order on October 21, 2003 Status Conference*, (hereinafter "*Procedural Order*"), hereby objects to BellSouth Telecommunications, Inc.'s (hereinafter "BellSouth") First Set of Interrogatories and First Requests for Production of Documents to MCI, served on October 27, 2003. Any responses made to BellSouth's interrogatories and requests for production of documents will be made subject to these and subsequent-stated objections, the Protective Agreement previously executed between the parties, and any protective order as may be issued by the Tennessee Regulatory Authority ("TRA") in this docket.

General Objections

MCI makes the following General Objections to BellSouth's First Set of Interrogatories and First Request for Production of Documents, including the applicable definitions and general instructions therein ("BellSouth discovery"), which, as appropriate, are specifically identified and incorporated into the relevant responses below.

1. MCI has interpreted the BellSouth discovery to apply to MCI's regulated intrastate operations in Tennessee and will limit its responses accordingly. To the extent that any BellSouth discovery is intended to apply to matters that take place outside the state of

purposes of the issues in this docket, as such discovery is overly broad and unduly burdensome.

13. In light of the short period of time MCI has been afforded to respond to the BellSouth discovery, the development of MCI's positions and potentially responsive information to the BellSouth requests is necessarily ongoing and continuing. This process is further complicated since, at this point in time, the actual issues to be set forth for hearing in this docket have not yet been established by order of the TRA. Except where otherwise stated in response to a specific BellSouth discovery request, MCI does not assume an affirmative obligation to supplement its answers on an ongoing basis, contrary to the BellSouth General Instruction.
14. MCI objects to the definition of "voice-grade equivalent lines," and each and every interrogatory or request for production that includes such term, as this term is not used by MCI in the course of its business, and MCI does not maintain information regarding "voice-grade equivalent lines" in the ordinary course of business. Given MCI's business records, MCI will answer such discovery by providing information regarding MCI's DSOs.
15. MCI objects to each and every interrogatory or request for production that seeks information regarding enterprise customers as such discovery is irrelevant for purposes of this docket and is not reasonably calculated to lead to the discovery of admissible evidence since the scope of this proceeding, as set forth by the FCC and the TRA, is limited to local circuit switching for mass market customers.
16. MCI objects to each and every interrogatory or request for production that seeks information regarding non-switched services (e.g., services that do not depend on Class 5

BEFORE THE GEORGIA PUBLIC SERVICE COMMISSION

In Re:)
FCC's Triennial Order Regarding the) **Docket No. 17749-U**
Impairment of Local Switching for Mass)
Market Customers)

**MCI's OBJECTIONS AND RESPONSES TO
BELLSOUTH'S FIRST SET OF INTERROGATORIES (Nos. 1-81) AND
FIRST REQUESTS FOR PRODUCTION OF DOCUMENTS (Nos. 1-21)**

MCImetro Access Transmission Services, LLC and MCI WorldCom Communications, Inc. (collectively, "MCI"), pursuant to the October 21, 2003 *Procedural and Scheduling Order* in this docket, hereby object and respond to the First Set of Interrogatories and First Request for Production of Documents to MCI, served by BellSouth Telecommunications, Inc. ("BellSouth") on October 31, 2003.

General Objections

MCI makes the following General Objections to BellSouth's First Set of Interrogatories and First Request for Production of Documents, including the applicable definitions and general instructions therein ("BellSouth discovery"), which, as appropriate, are specifically identified and incorporated into the relevant responses below.

1. MCI objects to BellSouth's discovery to the extent it seeks information not within MCI's possession control, or custody or to the extent BellSouth's discovery requests that MCI provide information that MCI does not maintain in the ordinary course of business.

2. MCI objects to the BellSouth discovery to the extent that such discovery calls for information which is exempt from discovery by virtue of the attorney-client privilege, work product privilege, or other applicable privilege.

14. MCI objects to the definition of “voice-grade equivalent lines,” and each and every interrogatory or request for production that includes such term, as this term is not used by MCI in the course of its business. Given MCI’s business records, MCI will answer such discovery by providing information regarding MCI’s DSOs.

15. MCI objects to each and every interrogatory or request for production that seeks information regarding enterprise customers as such discovery is irrelevant for purposes of this docket and is not reasonably calculated to lead to the discovery of admissible evidence since the scope of this proceeding, as set forth by the FCC and the Commission, is limited to local circuit switching for mass market customers.

16. MCI objects to each and every interrogatory or request for production that seeks information regarding non-switched services (e.g., services that do not depend on local Class 5 switches) except for non-switched services (e.g., DSL) provided on loops that are also used to provide switched services, as such discovery is irrelevant for purposes of this docket and is not reasonably calculated to lead to the discovery of admissible evidence since the scope of this proceeding, as set forth by the FCC and the Commission, is limited to local circuit switching for mass market customers.

17. MCI objects to each and every interrogatory or request for production that seeks information regarding MCI’s operations in ILEC service areas other than the BellSouth ILEC service area as such information is irrelevant to BellSouth’s case in this docket and such discovery is overly broad and unduly burdensome.

**BEFORE THE
MISSISSIPPI PUBLIC SERVICE COMMISSION**

DOCKET NO. 2003-AD-714

(UNE-P CASE)

**IN RE: GENERIC PROCEEDING TO
REVIEW THE FEDERAL
COMMUNICATIONS
COMMISSION'S TRIENNIAL
REVIEW ORDER**

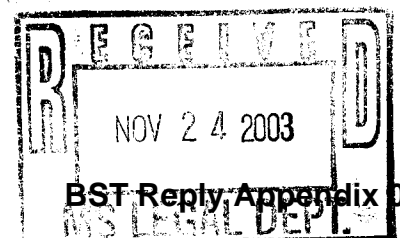
**MCI'S OBJECTIONS TO BELL SOUTH TELECOMMUNICATIONS, INC.'S
FIRST SET OF INTERROGATORIES
AND FIRST REQUESTS FOR PRODUCTION OF DOCUMENTS**

MCImetro Access Transmission Services, LLC, MCI WorldCom Communications, Inc. and Brooks Fiber Communications of Mississippi, Inc., (collectively "MCI"), hereby objects to BellSouth Telecommunications, Inc.'s (hereinafter "BellSouth") First Set of Interrogatories and First Requests for Production of Documents to MCI, served on November 12, 2003. Any responses made to BellSouth's interrogatories and requests for production of documents will be made subject to these and subsequent-stated objections, the Protective Agreement previously executed between the parties, and any protective order as may be issued by the Mississippi Public Service Commission (the "Commission") in this docket.

General Objections

MCI makes the following General Objections to BellSouth's First Set of Interrogatories and First Request for Production of Documents, including the applicable definitions and general instructions therein ("BellSouth discovery"), which, as appropriate, are specifically identified and incorporated into the relevant responses below.

1. MCI has interpreted the BellSouth discovery to apply to MCI's regulated intrastate operations in Mississippi and will limit its responses accordingly. To the extent that any BellSouth discovery is intended to apply to matters that take place outside the state of



evidence since the scope of this proceeding, as set forth by the FCC and the Commission, is limited to local circuit switching for mass market customers.

16. MCI objects to each and every interrogatory or request for production that seeks information regarding non-switched services (e.g., services that do not depend on Class 5 switches) except for non-switched services (e.g., DSL) provided on loops that are also used to provide switched services, as such discovery is irrelevant for purposes of this docket and is not reasonably calculated to lead to the discovery of admissible evidence since the scope of this proceeding, as set forth by the FCC and the Commission, is limited to local circuit switching for mass market customers.
17. MCI objects to each and every interrogatory or request for production that seeks information regarding MCI's operations in ILEC service areas other than the BellSouth ILEC service area within the state of Mississippi as such information is irrelevant to BellSouth's case in this docket and such discovery is overly broad and unduly burdensome.
18. MCI objects to each and every interrogatory or request for production that seeks to obtain information regarding "former officers, employees, agents, directors, and all other persons acting or purporting to act on behalf of MCI" as such information is not within MCI's control, would be unduly burdensome to attempt to obtain and is likely irrelevant.
19. MCI objects to the definitions for "qualifying service" and "non-qualifying service," and each and every interrogatory or request for production that includes such terms, as MCI does not use such terms in the ordinary course of business, does not maintain information regarding "qualifying service" and "non-qualifying service" in the ordinary course of business, and answering in these terms would require MCI to provide a legal

BEFORE THE ALABAMA PUBLIC SERVICE COMMISSION

In Re: Implementation of the Federal Communications Commission’s Triennial Review Order (Phase II – Local Circuit Switching))
)
) **Docket No. 29054**
)

**MCI's OBJECTIONS AND RESPONSES TO BELL SOUTH'S
FIRST SET OF INTERROGATORIES (Nos. 1-84)**

MCI WORLDCOM Communications, Inc. (hereinafter “MCI”), pursuant to the October 28, 2003 *Notice Concerning the Status of Phase I and the Procedural Schedule for Phases II and III* (“Notice”) issued by the Alabama Public Service Commission (“Commission”) in this docket, hereby objects and responds to the First Set of Interrogatories to MCI served by BellSouth Telecommunications, Inc. (“BellSouth”).

General Objections

MCI makes the following General Objections to BellSouth's First Set of Interrogatories, including the applicable definitions and general instructions therein ("BellSouth discovery"), which, as appropriate, are specifically identified and incorporated into the relevant responses below.

1. MCI objects to BellSouth's discovery to the extent it seeks information not within MCI's possession control, or custody or to the extent BellSouth's discovery requests that MCI provide information that MCI does not maintain in the ordinary course of business.

2. MCI objects to the BellSouth discovery to the extent that such discovery calls for information which is exempt from discovery by virtue of the attorney-client privilege, work product privilege, or other applicable privilege.

15. MCI objects to each and every interrogatory that seeks information regarding enterprise customers as such discovery is irrelevant for purposes of this docket and is not reasonably calculated to lead to the discovery of admissible evidence since the scope of this proceeding, as set forth by the FCC and the Commission, is limited to local circuit switching for mass market customers.

16. MCI objects to each and every interrogatory that seeks information regarding non-switched services (e.g., services that do not depend on local Class 5 switches) except for non-switched services (e.g., DSL) provided on loops that are also used to provide switched services, as such discovery is irrelevant for purposes of this docket and is not reasonably calculated to lead to the discovery of admissible evidence since the scope of this proceeding, as set forth by the FCC and the Commission, is limited to local circuit switching for mass market customers.

17. MCI objects to each and every interrogatory that seeks information regarding MCI's operations in ILEC service areas other than the BellSouth ILEC service area as such information is irrelevant to BellSouth's case in this docket and such discovery is overly broad and unduly burdensome.

18. MCI objects to each and every interrogatory that seeks to obtain information regarding "former officers, employees, agents, directors, and all other persons acting or purporting to act on behalf of MCI" as such information is not within MCI's control, would be unduly burdensome to attempt to obtain and is likely irrelevant.

19. MCI objects to the definitions for "qualifying service" and "non-qualifying service," and each and every interrogatory that includes such terms, as MCI does not use such terms in the ordinary course of business and answering in these terms would require MCI to

BEFORE THE ALABAMA PUBLIC SERVICE COMMISSION

In Re: Implementation of the Federal)	
Communications Commission's Triennial)	Docket No. 29054
Review Order (Phase II – Local Circuit)	
Switching)	

**MCI's OBJECTIONS AND RESPONSES TO BELL SOUTH'S
FIRST REQUESTS FOR PRODUCTION OF DOCUMENTS (Nos. 1-21)**

MCI WORLDCOM Communications, Inc. (hereinafter "MCI"), pursuant to the October 28, 2003 *Notice Concerning the Status of Phase I and the Procedural Schedule for Phases II and III* ("Notice") issued by the Alabama Public Service Commission ("Commission") in this docket, hereby objects and responds to the First Request for Production of Documents to MCI, served by BellSouth Telecommunications, Inc. ("BellSouth").

General Objections

MCI makes the following General Objections to BellSouth's First Request for Production of Documents, including the applicable definitions and general instructions therein ("BellSouth discovery"), which, as appropriate, are specifically identified and incorporated into the relevant responses below.

1. MCI objects to BellSouth's discovery to the extent it seeks information not within MCI's possession control, or custody or to the extent BellSouth's discovery requests that MCI provide information that MCI does not maintain in the ordinary course of business.
2. MCI objects to the BellSouth discovery to the extent that such discovery calls for information which is exempt from discovery by virtue of the attorney-client privilege, work product privilege, or other applicable privilege.

15. MCI objects to each and every request for production that seeks information regarding enterprise customers as such discovery is irrelevant for purposes of this docket and is not reasonably calculated to lead to the discovery of admissible evidence since the scope of this proceeding, as set forth by the FCC and the Commission, is limited to local circuit switching for mass market customers.

16. MCI objects to each and every request for production that seeks information regarding non-switched services (e.g., services that do not depend on local Class 5 switches) except for non-switched services (e.g., DSL) provided on loops that are also used to provide switched services, as such discovery is irrelevant for purposes of this docket and is not reasonably calculated to lead to the discovery of admissible evidence since the scope of this proceeding, as set forth by the FCC and the Commission, is limited to local circuit switching for mass market customers.

17. MCI objects to each and every request for production that seeks information regarding MCI's operations in ILEC service areas other than the BellSouth ILEC service area as such information is irrelevant to BellSouth's case in this docket and such discovery is overly broad and unduly burdensome.

18. MCI objects to each and every request for production that seeks to obtain information regarding "former officers, employees, agents, directors, and all other persons acting or purporting to act on behalf of MCI" as such information is not within MCI's control, would be unduly burdensome to attempt to obtain and is likely irrelevant.

19. MCI objects to the definitions for "qualifying service" and "non-qualifying service," and each and every request for production that includes such terms, as MCI does not use such terms in the ordinary course of business and answering in these terms would require

COMMONWEALTH OF KENTUCKY
BEFORE THE PUBLIC SERVICE COMMISSION

In the Matter of:

REVIEW OF FEDERAL COMMUNICATIONS)	
COMMISSION’S TRIENNIAL REVIEW ORDER)	CASE NO.
REGARDING UNBUNDLING REQUIREMENTS)	2003-00379
FOR INDIVIDUAL NETWORK ELEMENTS)	

**MCI’s OBJECTIONS AND RESPONSES TO
BELLSOUTH’S FIRST SET OF INTERROGATORIES (Nos. 1-83) AND
FIRST REQUESTS FOR PRODUCTION OF DOCUMENTS (Nos. 1-21)**

MCImetro Access Transmission Services, LLC and MCI WorldCom Communications, Inc. (hereinafter “MCI”), hereby respond to BellSouth Telecommunications, Inc.’s (hereinafter “BellSouth”) First Set of Interrogatories and First Requests for Production of Documents to MCI.¹ These and any supplemental responses made to BellSouth’s First Set of Interrogatories and First Requests for Production of Documents to MCI are and will be made subject to the objections contained herein and any subsequent-stated objections of MCI, the protective agreement previously executed between the parties, and any protective order as may be issued by the Commission in this docket

MCI makes the following General Objections to BellSouth’s First Set of Interrogatories and First Request for Production of Documents, including the applicable definitions and general

¹ BellSouth’s “First” set of requests consists of those requests incorporated by reference into request number 28 in BellSouth’s November 24, 2003 “Second” set of requests.

15. MCI objects to each and every interrogatory or request for production that seeks information regarding enterprise customers as such discovery is irrelevant for purposes of this docket and is not reasonably calculated to lead to the discovery of admissible evidence since the scope of this proceeding, as set forth by the FCC and the Commission, is limited to local circuit switching for mass market customers.
16. MCI objects to each and every interrogatory or request for production that seeks information regarding non-switched services (e.g., services that do not depend on Class 5 switches) except for non-switched services (e.g., DSL) provided on loops that are also used to provide switched services, as such discovery is irrelevant for purposes of this docket and is not reasonably calculated to lead to the discovery of admissible evidence since the scope of this proceeding, as set forth by the FCC and the Commission, is limited to local circuit switching for mass market customers.
17. MCI objects to each and every interrogatory or request for production that seeks information regarding MCI's operations in ILEC service areas other than the BellSouth ILEC service area within the state of Kentucky as such information is irrelevant to BellSouth's case in this docket and such discovery is overly broad and unduly burdensome.
18. MCI objects to each and every interrogatory or request for production that seeks to obtain information regarding "former officers, employees, agents, directors, and all other persons acting or purporting to act on behalf of MCI" as such information is not within MCI's control, would be unduly burdensome to attempt to obtain and is likely irrelevant.
19. MCI objects to the definitions for "qualifying service" and "non-qualifying service," and each and every interrogatory or request for production that includes such terms, as MCI

**BEFORE THE
NORTH CAROLINA UTILITIES COMMISSION**

In the Matter of:)	
)	
Triennial Review – UNE-P Address)	Docket No. P-100, Sub 133q
Implementation of Unbundling)	
Requirements of R-51.319 in Determining)	
Principally the Continued Availability of)	
Unbundled Local Switching for the)	
Mass-Market)	

**MCI's OBJECTIONS AND RESPONSES TO
BELL SOUTH'S FIRST SET OF INTERROGATORIES (Nos. 1-83) AND
FIRST REQUESTS FOR PRODUCTION OF DOCUMENTS (Nos. 1-21)**

MCImetro Access Transmission Services, LLC and MCI WorldCom Communications, Inc. (hereinafter "MCI"), pursuant to the Rules of the North Carolina Utilities Commission ("NCUC") and Rule 26 of the North Carolina Rules of Civil Procedure, as well as the Procedural Order of October 22, 2003, as revised, hereby respond to BellSouth Telecommunications, Inc.'s (hereinafter "BellSouth") First Set of Interrogatories and First Requests for Production of Documents to MCI, served on November 3, 2003. These and any supplemental responses made to BellSouth's First Set of Interrogatories and First Requests for Production of Documents to MCI are and will be made subject to the objections contained herein and any subsequent-stated objections of MCI, the protective agreement previously executed between the parties, and any protective order as may be issued by the NCUC in this docket

MCI makes the following General Objections to BellSouth's First Set of Interrogatories and First Request for Production of Documents, including the applicable definitions and general instructions therein ("BellSouth discovery"), which, as appropriate, are specifically identified and incorporated into the relevant responses below.

11. MCI objects to the BellSouth discovery to the extent such discovery seeks to have MCI create documents not in existence at the time of the request.
12. MCI objects to the BellSouth discovery to the extent that such discovery is not limited to any stated period of time or a stated period of time that is longer than is relevant for purposes of the issues in this docket, as such discovery is overly broad and unduly burdensome.
13. In light of the short period of time MCI has been afforded to respond to the BellSouth discovery, the development of MCI's positions and potentially responsive information to the BellSouth requests is necessarily ongoing and continuing. This process is further complicated since, at this point in time, all the issues to be set forth for hearing in this docket have not yet been established. Except where otherwise stated in response to a specific BellSouth discovery request, MCI does not assume an affirmative obligation to supplement its answers on an ongoing basis, contrary to the BellSouth General Instruction.
14. MCI objects to the definition of "voice-grade equivalent lines," and each and every interrogatory or request for production that includes such term, as this term is not used by MCI in the course of its business, and MCI does not maintain information regarding "voice-grade equivalent lines" in the ordinary course of business. Given MCI's business records, MCI will answer such discovery by providing information regarding MCI's DSOs.
15. MCI objects to each and every interrogatory or request for production that seeks information regarding enterprise customers as such discovery is irrelevant for purposes of this docket and is not reasonably calculated to lead to the discovery of admissible

evidence since the scope of this proceeding, as set forth by the FCC and the NCUC, is limited to local circuit switching for mass market customers.

16. MCI objects to each and every interrogatory or request for production that seeks information regarding non-switched services (e.g., services that do not depend on Class 5 switches) except for non-switched services (e.g., DSL) provided on loops that are also used to provide switched services, as such discovery is irrelevant for purposes of this docket and is not reasonably calculated to lead to the discovery of admissible evidence since the scope of this proceeding, as set forth by the FCC and the NCUC, is limited to local circuit switching for mass market customers.
17. MCI objects to each and every interrogatory or request for production that seeks information regarding MCI's operations in ILEC service areas other than the BellSouth ILEC service area within the state of North Carolina as such information is irrelevant to BellSouth's case in this docket and such discovery is overly broad and unduly burdensome.
18. MCI objects to each and every interrogatory or request for production that seeks to obtain information regarding "former officers, employees, agents, directors, and all other persons acting or purporting to act on behalf of MCI" as such information is not within MCI's control, would be unduly burdensome to attempt to obtain and is likely irrelevant.
19. MCI objects to the definitions for "qualifying service" and "non-qualifying service," and each and every interrogatory or request for production that includes such terms, as MCI does not use such terms in the ordinary course of business, does not maintain information regarding "qualifying service" and "non-qualifying service" in the ordinary course of business, and answering in these terms would require MCI to provide a legal

LOUISIANA PUBLIC SERVICE)	
COMMISSION, ex parte)	
)	Docket No. U-27571
In re: Louisiana Public Service Commission)	
Implementation of the requirements)	
Arising from the Federal Communications)	
Triennial Review Order, Order 03-36:)	
Unbundled local circuit switching for Mass)	
Market customers and establishment of a)	
<u>Batch cut</u>)	

**MCI's OBJECTIONS AND RESPONSES TO BELL SOUTH'S
FIRST REQUESTS FOR PRODUCTION OF DOCUMENTS (Nos. 1-21)**

MCImetro Access Transmission Services, LLC and MCI WorldCom Communications, Inc. (collectively, "MCI"), hereby object and respond to the First Requests for Production of Documents served by BellSouth Telecommunications, Inc. ("BellSouth").

General Objections

MCI makes the following General Objections to BellSouth's First Request for Production of Documents, including the applicable definitions and general instructions therein ("BellSouth discovery"), which, as appropriate, are specifically identified and incorporated into the relevant responses below.

1. MCI objects to BellSouth's discovery to the extent it seeks information not within MCI's possession control, or custody or to the extent BellSouth's discovery requests that MCI provide information that MCI does not maintain in the ordinary course of business.

2. MCI objects to the BellSouth discovery to the extent that such discovery calls for information which is exempt from discovery by virtue of the attorney-client privilege, work product privilege, or other applicable privilege.

course of its business. Given MCI's business records, MCI will answer such discovery by providing information regarding MCI's DSOs.

15. MCI objects to each and every request for production that seeks information regarding enterprise customers as such discovery is irrelevant for purposes of this docket and is not reasonably calculated to lead to the discovery of admissible evidence since the scope of this proceeding, as set forth by the FCC and the Commission, is limited to local circuit switching for mass market customers.

16. MCI objects to each and every request for production that seeks information regarding non-switched services (e.g., services that do not depend on local Class 5 switches) except for non-switched services (e.g., DSL) provided on loops that are also used to provide switched services, as such discovery is irrelevant for purposes of this docket and is not reasonably calculated to lead to the discovery of admissible evidence since the scope of this proceeding, as set forth by the FCC and the Commission, is limited to local circuit switching for mass market customers.

17. MCI objects to each and every request for production that seeks information regarding MCI's operations in ILEC service areas other than the BellSouth ILEC service area as such information is irrelevant to BellSouth's case in this docket and such discovery is overly broad and unduly burdensome.

18. MCI objects to each and every request for production that seeks to obtain information regarding "former officers, employees, agents, directors, and all other persons acting or purporting to act on behalf of MCI" as such information is not within MCI's control, would be unduly burdensome to attempt to obtain and is likely irrelevant.

proprietary

BEFORE THE LOUISIANA PUBLIC SERVICE COMMISSION

LOUISIANA PUBLIC SERVICE)	
COMMISSION, ex parte)	
)	Docket No. U-27571
In re: Louisiana Public Service Commission)	
Implementation of the requirements)	
Arising from the Federal Communications)	
Triennial Review Order, Order 03-36:)	
Unbundled local circuit switching for Mass)	
Market customers and establishment of a)	
<u>Batch cut</u>)	

**MCI's RESPONSES AND OBJECTIONS TO BELL SOUTH'S
FIRST SET OF INTERROGATORIES (Nos. 1-83)**

MCImetro Access Transmission Services, LLC and MCI WorldCom Communications, Inc. (collectively, "MCI"), hereby object and respond to the First Set of Interrogatories to MCI served by BellSouth Telecommunications, Inc. ("BellSouth").

General Objections

MCI makes the following General Objections to BellSouth's First Set of Interrogatories, including the applicable definitions and general instructions therein ("BellSouth discovery"), which, as appropriate, are specifically identified and incorporated into the relevant responses below.

1. MCI objects to BellSouth's discovery to the extent it seeks information not within MCI's possession control, or custody or to the extent BellSouth's discovery requests that MCI provide information that MCI does not maintain in the ordinary course of business.
2. MCI objects to the BellSouth discovery to the extent that such discovery calls for information which is exempt from discovery by virtue of the attorney-client privilege, work product privilege, or other applicable privilege.

business. Given MCI's business records, MCI will answer such discovery by providing information regarding MCI's DSOs.

15. MCI objects to each and every interrogatory that seeks information regarding enterprise customers as such discovery is irrelevant for purposes of this docket and is not reasonably calculated to lead to the discovery of admissible evidence since the scope of this proceeding, as set forth by the FCC and the Commission, is limited to local circuit switching for mass market customers.

16. MCI objects to each and every interrogatory that seeks information regarding non-switched services (e.g., services that do not depend on local Class 5 switches) except for non-switched services (e.g., DSL) provided on loops that are also used to provide switched services, as such discovery is irrelevant for purposes of this docket and is not reasonably calculated to lead to the discovery of admissible evidence since the scope of this proceeding, as set forth by the FCC and the Commission, is limited to local circuit switching for mass market customers.

17. MCI objects to each and every interrogatory that seeks information regarding MCI's operations in ILEC service areas other than the BellSouth ILEC service area as such information is irrelevant to BellSouth's case in this docket and such discovery is overly broad and unduly burdensome.

18. MCI objects to each and every interrogatory that seeks to obtain information regarding "former officers, employees, agents, directors, and all other persons acting or

BEFORE
THE PUBLIC SERVICE COMMISSION OF
SOUTH CAROLINA

DOCKET NO. 2003-326-C

IN RE:)
Analysis of Continued Availability of)
Unbundled Local Switching for Mass Market)
Customers Pursuant to the Federal Communication)
Commission's Triennial Review Order)
)

**MCI's OBJECTIONS AND RESPONSES TO
BELLSOUTH'S FIRST SET OF INTERROGATORIES (Nos. 1-84) AND
FIRST REQUESTS FOR PRODUCTION OF DOCUMENTS (Nos. 1-21)**

MCImetro Access Transmission Services, LLC and MCI WorldCom Communications, Inc. (hereinafter "MCI"), pursuant to the Rules of the South Carolina Public Service Commission ("SCPSC") and Rule 26 of the South Carolina Rules of Civil Procedure, as well as the Procedural Order of October 22, 2003, as revised, hereby respond to BellSouth Telecommunications, Inc.'s (hereinafter "BellSouth") First Set of Interrogatories and First Requests for Production of Documents to MCI, served on November 3, 2003. These and any supplemental responses made to BellSouth's First Set of Interrogatories and First Requests for Production of Documents to MCI are and will be made subject to the objections contained herein and any subsequent-stated objections of MCI, the protective agreement previously executed between the parties, and any protective order as may be issued by the SCPSC in this docket

request, MCI does not assume an affirmative obligation to supplement its answers on an ongoing basis, contrary to the BellSouth General Instruction.

14. MCI objects to the definition of “voice-grade equivalent lines,” and each and every interrogatory or request for production that includes such term, as this term is not used by MCI in the course of its business, and MCI does not maintain information regarding “voice-grade equivalent lines” in the ordinary course of business. Given MCI’s business records, MCI will answer such discovery by providing information regarding MCI’s DSOs.
15. MCI objects to each and every interrogatory or request for production that seeks information regarding enterprise customers as such discovery is irrelevant for purposes of this docket and is not reasonably calculated to lead to the discovery of admissible evidence since the scope of this proceeding, as set forth by the FCC and the SCPSC, is limited to local circuit switching for mass market customers.
16. MCI objects to each and every interrogatory or request for production that seeks information regarding non-switched services (e.g., services that do not depend on Class 5 switches) except for non-switched services (e.g., DSL) provided on loops that are also used to provide switched services, as such discovery is irrelevant for purposes of this docket and is not reasonably calculated to lead to the discovery of admissible evidence since the scope of this proceeding, as set forth by the FCC and the SCPSC, is limited to local circuit switching for mass market customers.
17. MCI objects to each and every interrogatory or request for production that seeks information regarding MCI’s operations in ILEC service areas other than the

BELLSOUTH APPENDIX

TAB 2

BEFORE THE FLORIDA PUBLIC SERVICE COMMISSION

In re: Implementation of requirements arising
From Federal Communications Commission
Triennial UNE review: Local Circuit Switching
For Mass Market Customers

Docket No. 030851-TP

Served: December 29, 2003

**FLORIDA COMPETITIVE CARRIERS ASSOCIATION'S ANSWERS TO
BELLSOUTH'S FIRST SET OF INTERROGATORIES**

The Florida Competitive Carriers Association (FCCA), through its undersigned counsel, hereby submits its answers to the First Set of Interrogatories (Nos. 1- 19) served by BellSouth Telecommunications, Inc. (BellSouth). These answers are subject to the preliminary objections that FCCA filed on December 15, 2003, which FCCA hereby reiterates and sets forth as follows:

1. FCCA objects to the "Definitions" section, the "General Instructions," and the individual items of BellSouth's Discovery Requests to the extent that they are overly broad, unduly burdensome, and/or oppressive.

2. FCCA objects to the "Definitions," the "General Instructions," and the individual items within the discovery requests to the extent they are irrelevant to the issues in this docket and not reasonably calculated to lead to the discovery of admissible evidence. By way of illustration and not limitation, FCCA objects to interrogatories and document requests that seek information that is unrelated to or inconsistent with the parameters and methodology of the impairment analysis prescribed by the FCC in its Triennial Review Order.

3. FCCA objects to the "Definitions," the "General Instructions," and the individual Discovery Requests to the extent they are vague, ambiguous, imprecise, or utilize terms that are subject to multiple interpretations but are not properly defined or explained for purposes of these Requests.

16. Referring to page 53 of the Direct Testimony of Joseph Gillan, is Mr. Gillan's testimony that "[t]he incumbent's network would be disrupted by a shift of UNE-P lines to UNE-L" based on any empirical analysis, study, or evaluation? If the answer to this Interrogatory is in the affirmative, describe with particularity that analysis, study, or evaluation.

Answer to Interrogatory 16

No.

Answer provided by Joseph Gillan

17. Referring to the statement on page 61 of the Direct Testimony of Joseph Gillan that "the RBOCs compete in long distance in exactly the same manner that AT&T and MCI (and now Sprint) compete in local markets," do you contend that long distance carriers are required to provide wholesale services to the RBOCs at TELRIC rates? If the answer to this Interrogatory is in the affirmative, state all facts and identify all documents that support this contention.

Answer to Interrogatory 17

No.

18. Identify each individual carrier that comprises the FCCA and state whether each such carrier decides to enter a market at the wire-center level.

OBJECTION AND ANSWER

To the extent Interrogatory 18 could be interpreted to apply to enterprise customers, FCCA objects to Interrogatory 18 on the grounds it is irrelevant and not reasonably calculated to lead to

the discovery of admissible evidence. Notwithstanding this objection, and without waiving it, FCCA provides the following information:

18(a):

ICG Telecom Group, Inc.	—does not provide voice service in Florida
Access Integrated Networks, Inc.	—does not decide at the wire center level
AT&T	--does not decide at the wire center level
IDS Telecom	--does not decide at the wire center level
New South Communications Corp.	--does not decide at the wire center level
Supra Telecommunications and Information Systems	----does not decide at the wire center level
Z-Tel Communications, Inc.	—does not decide at the wire center level
Network Telephone Corporation	decides at the wire center level
MCI	decides at the wire center level

Further, KMC and ITC DeltaCom have not provided information as of this date. FCCA will supplement this answer as soon as it obtains the information.

Objection by undersigned counsel

Answer provided by Mark Long

19. For those carriers identified in response to Interrogatory No. 18 that decide to enter a market at the wire-center level, please:

- (a) identify those wire centers in BellSouth's service territory in Florida that each such carrier has decided not to enter;
- (b) explain in detail why the carrier decided not to enter that wire center; and
- (c) identify all documents referring or relating to the process by which each such carrier decides to enter a market at the wire-center level.

OBJECTION AND ANSWER:

To the extent it could be interpreted to apply to enterprise customers, FCCA objects to Interrogatory 19 as irrelevant and not reasonably calculated to lead to the discovery of admissible evidence. FCCA further states that the information sought by this interrogatory is not relevant to the impairment analysis since the issue for purposes of this proceeding under the TRO is for potential deployment by a hypothetical CLEC, and thus CLEC- specific information, such as that sought from MCI and Network Telephone, is simply not relevant to this analysis.

Notwithstanding this objection, and without waiving it, FCCA answers as follows:

- A. MCI does not offer service in Zone 3.

Network Telephone actively markets its service in only four wire centers in Florida. They are PNSCFLBL, PNSCFLFP, PNSCFLWA and GSVLFLMA. Network Telephone has decided not to enter any other wire centerws in the state.

- B. There are several factors that influence MCI's market entry decisions. These factors include but are not limited to ILEC retail price, ILEC access charges, and ILEC UNE-P/UNE pricing.

Network Telephone has decided not to enter the remaining wire centers in Florida because of the lack of a more favorable regulatory climate, combined with the industry-wide difficulty in attracting capital for expansion at this time. Network telephone has chosen to make investments in other states in the BellSouth region, and has in fact withdrawn past plans for expansion to additional markets in Florida.

- C. FCCA objects on the grounds the interrogatory is vague, ambiguous, and overbroad. FCCA objects on the grounds the interrogatory seeks the disclosure of proprietary and confidential information. FCCA objects on the grounds the interrogatory is burdensome and oppressive. FCCA objects on the grounds that, inasmuch as any ‘potential deployment’ analysis is to be based on a hypothetical CLEC, any information regarding specific CLECs would be irrelevant, and the interrogatory is not reasonably calculated to lead to the discovery of admissible evidence.

Objection by undersigned counsel

Answer provided by Mark Long

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Attorneys for Florida Competitive Carriers
Association

BEFORE THE GEORGIA PUBLIC SERVICE COMMISSION

In Re:)	
FCC's Triennial Order Regarding the)	Docket No. 17749-U
Impairment of Local Switching for Mass)	
Market Customers)	

**COMPSOUTH'S RESPONSES TO
BELLSOUTH'S FIRST SET OF INTERROGATORIES (Nos. 1-44) AND
FIRST REQUESTS FOR PRODUCTION OF DOCUMENTS (Nos. 1-2)**

Competitive Carriers of the South ("CompSouth"), pursuant to the October 21, 2003 *Procedural and Scheduling Order* in this docket, hereby responds to BellSouth Telecommunications, Inc.'s (hereinafter "BellSouth") First Set of Interrogatories and First Request for Production of Documents to CompSouth, served on February 4, 2004. Any responses made to BellSouth's interrogatories and requests for production of documents are made subject to the general and specific objections stated herein, the Protective Agreement previously executed between the parties, and any protective order as may be issued by the Georgia Public Service Commission ("Commission") in this docket.

General Objections

CompSouth makes the following General Objections to BellSouth's First Set of Interrogatories and First Request for Production of Documents, including the applicable definitions and general instructions therein ("BellSouth's discovery").

1. CompSouth objects to BellSouth's discovery to the extent it seeks to impose an obligation on CompSouth to respond on behalf of persons that are not parties to this case on the grounds that such interrogatories are overly broad, unduly burdensome, oppressive, and not permitted by applicable discovery rules.

any information relied upon by Mr. Gillan in making his geographic market recommendation that he did not possess at the time his Direct Testimony was filed.

RESPONSE:

As explained in Mr. Gillan's Direct Testimony, he believed it was appropriate to first determine where BellSouth claimed that CLECs were not impaired before analyzing that proposal and offering alternatives, if appropriate.

Answer provided by Joseph Gillan.

INTERROGATORY NO. 9:

For those individual carriers that comprise CompSouth, identify each such carrier that decides to enter a market at the wire-center level.

RESPONSE:

In addition to its general objections, CompSouth objects on the grounds that it is a coalition formed for advocating regulatory policy and has no legal authority to compel its members to respond to indirect discovery of this kind from BellSouth or any other party, and BellSouth was within its rights to serve this Interrogatory individually on CompSouth members if it so chose. Notwithstanding these objections, and without waiving them, CompSouth refers BellSouth to Attachment A, which is a composite document summarizing responses received from certain CompSouth members regarding Interrogatory Nos. 9-12.

INTERROGATORY NO. 10:

For those carriers identified in response to Interrogatory No. 9 that decide to enter a market at the wire-center level, please:

- (a) identify those wire centers in BellSouth's service territory in Georgia that each such carrier has decided not to enter;
- (b) explain in detail why the carrier decided not to enter that wire center; and
- (c) identify all documents referring or relating to the process by which each such carrier decides to enter a market at the wire-center level.

RESPONSE:

See objections and response to No. 9.

INTERROGATORY NO. 11:

For those individual carriers that comprise CompSouth, identify each such carrier that decides to enter a market at the LATA level.

RESPONSE:

See objections and response to No. 9.

INTERROGATORY NO. 12:

For those carriers identified in response to Interrogatory No. 11 that decide to enter a market at the LATA level, please:

- (a) identify any LATAs in BellSouth's service territory in Georgia that each such carrier has decided not to enter;
- (b) explain in detail why the carrier decided not to enter that LATA;
- (c) identify those LATAs in BellSouth's service territory in Georgia that each such carrier has decided to enter;
- (d) identify any wire centers in those LATAs that each such carrier has

entered where the carrier does not provide qualifying service; and

- (e) identify all documents referring or relating to the process by which each such carrier decides to enter a market at the LATA level.

RESPONSE:

See objections and response to No. 9.

INTERROGATORY NO. 13:

Referring to page 34 of the Direct Testimony of Joseph Gillan, has any analysis, study, or evaluation of “a CLEC’s costs to extend an analog loop from the wire center where it is currently located to the CLEC’s switch location” been conducted by, on behalf, or at the direction of CompSouth or Mr. Gillan? If the answer to this Interrogatory is in the affirmative, describe with particularity the results of that analysis, study, or evaluation.

RESPONSE:

Mr. Gillan has not performed that calculation for this proceeding. Mr. Gillan is aware of a variety of such analyses that were filed at the FCC in the TRO proceeding and BellSouth has the same access to that record as Mr. Gillan.

Response provided by Joseph Gillan.

INTERROGATORY NO. 14:

Referring to the six trigger criteria identified on page 38 of the Direct Testimony of Joseph Gillan, provide specific references to any and all language in the TRO that support your position that a carrier must meet each of these six criteria in order to qualify as one of the three self-provisioning providers necessary to satisfy the FCC’s self-provisioning trigger.

BELLSOUTH APPENDIX

TAB 3

ACN Bundled Calling Provides New Choice for Louisiana Residents

- Monthly, tens of thousands of customers are selecting *ACN Advantage*, ACN's local/long distance bundled service
- *ACN Advantage* is available in 13 states, with 14 new states launching over the next 30 days

[Farmington Hills, Michigan – January 28, 2004] ACN, one of the fastest growing, privately held companies in the world and a leader in voice, data, mobile and energy customer acquisition, is experiencing incredible growth in local calling markets throughout the United States. Most recently, ACN announced expansion into Louisiana, providing residents with an impressive alternative for a comprehensive communications solution with *ACN Advantage* plans. *ACN Advantage* represents the union of ACN's premier local and long distance calling plans, soon combined with ACN's DSL service, together on one bill and in one easy to understand package.

Monthly, tens of thousands of customers are selecting ACN as their local/long distance bundled service provider. Since its introduction in March, *ACN Advantage* has been offering customers a clear choice for convenience, affordability and complete customer support. To customers, the advantages of *ACN Advantage* are clear: highly competitive rates plus customizable, feature rich plans with simple, easy to understand billing and personalized attention from their own Communications Consultant. *ACN Advantage* offers a variety of plans aimed to fit an individual's specific needs and budget. In addition, each *ACN Advantage* plan automatically includes unlimited ACN-2-ACN Free Calling which allows customers to call anyone else who is also an *ACN Advantage* customer anytime day or night, no matter where they live in the United States. They can talk as long as they like, absolutely free.

ACN Advantage is currently available to most consumers in the following 13 states: California, Florida, Georgia, Illinois, Maryland, Michigan, New York, North Carolina, Ohio, Pennsylvania, Texas, Utah and the territory of Washington DC. ACN is also pleased to announce new service expansion, in addition to Louisiana, in the following 14 states during the 1st quarter of 2004: Alabama, Arizona, California (additional territory), Colorado, Kentucky, Minnesota, Missouri, Nevada, New Jersey, Oklahoma, Oregon, Tennessee, Washington and Wisconsin.

ACN President Greg Provenzano stated, "We're thrilled to bring our bundled product to the residents of Louisiana, and the rapid pace we're accelerating at is not about to slow down! The consumer response we've seen is undeniable and we'll continue our effort to ensure consumers across America reap the benefits of competition. By simply providing consumers with a better alternative and a better value on services they already use every day, we've become a dominating force in the direct sales industry."

For more information on ACN, including its products, services, or independent business opportunity, visit www.acninc.com.

- END -

Media Contact:

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About ACN

ACN is a leading direct selling company offering highly competitive local, long distance, wireless, internet access, gas and electricity services to consumers and small businesses in the United States, Canada and Europe. ACN is one of the fastest growing privately held companies with annual revenue growth almost 50% and annualized revenue of nearly \$500 million.

ACN markets directly to consumers and small businesses using thousands of commission based Independent Business Representatives. ACN's services are available in: United States; Canada; Austria; Denmark; Finland; Germany; Ireland; Italy; Netherlands; Norway; Sweden; and the United Kingdom.

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BELLSOUTH APPENDIX

TAB 4

KELLOGG, HUBER, HANSEN, TODD & EVANS, P.L.L.C.

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August 18, 2004

Ex Parte Filing

Marlene Dortch, Secretary
Federal Communications Commission
445 12th Street, S.W., Room TW-A325
Washington, D.C. 20554

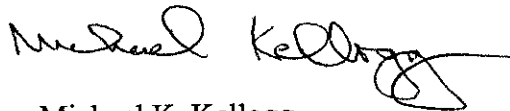
Re: *Review of the Section 251 Unbundling Obligations of Incumbent Local Exchange Carriers*, CC Docket No. 01-338; *Implementation of the Local Competition Provisions in the Telecommunications Act of 1996*, CC Docket No. 96-98; and *Deployment of Wireline Services Offering Advanced Telecommunications Capability*, CC Docket No. 98-147

Dear Ms. Dortch:

Enclosed for filing on behalf of the United States Telecom Association, BellSouth Corporation, Qwest Communications International Inc., SBC Communications Inc., and the Verizon telephone companies are copies of an ex parte presentation in response to EarthLink's ex parte presentation dated August 10, 2004. An additional copy is enclosed for each docket matter referenced above.

Please date-stamp and return the enclosed extra copy. Thank you for your assistance. If you have any questions, please call me at 202-326-7902.

Sincerely,



Michael K. Kellogg

Enclosures

August 18, 2004

Ex Parte Filing

The Honorable Michael K. Powell
Chairman
Federal Communications Commission
445 12th Street, S.W.
Washington, D.C. 20554

Re: *Review of the Section 251 Unbundling Obligations of Incumbent Local Exchange Carriers*, CC Docket No. 01-338; *Implementation of the Local Competition Provisions in the Telecommunications Act of 1996*, CC Docket No. 96-98; and *Deployment of Wireline Services Offering Advanced Telecommunications Capability*, CC Docket No. 98-147

Dear Chairman Powell:

On behalf of the United States Telecom Association, BellSouth Corporation, Qwest Communications International Inc., SBC Communications Inc., and the Verizon telephone companies, I write to urge the Commission to reject EarthLink's request¹ that the Commission stay the next phase of its line-sharing transition pending the completion of the *Triennial Review Remand* proceeding.

EarthLink's stay request is premised on the belief that, in those remand proceedings, the Commission is likely to reinstate line sharing. But the Commission could reinstate line sharing only by acting illegally and in blatant disregard of the D.C. Circuit's mandate. EarthLink should have no chance of success in urging this Commission to flout binding federal court precedent. For that reason alone, the stay should be denied.

¹ See Ex Parte Letter from Donna N. Lampert & Mark J. O'Connor, Counsel for EarthLink, Inc., to Marlene Dortch, Secretary, FCC, CC Docket Nos. 01-338 *et al.* (Aug. 10, 2004) ("EarthLink Letter").

Even beyond that, the equities do not support a stay. Recent market facts demonstrate that broadband competition is thriving without line sharing and that competition has *increased* significantly in the year since the Commission released the *Triennial Review Order*.² Prices are declining, facilities deployment over cable, wireless, and wireline platforms – soon to be joined by power lines – is growing, and subscribership is rising by nearly 2 million customers every quarter. In short, consumers are getting all the benefits of real competition. Indeed, in contrast to its opportunistic position here, in its recent SEC filings, EarthLink has highlighted the existence of vigorous broadband competition and the benefits that it has brought to the market: “The intensity of competition in the telecommunications industry has resulted in significant declines in pricing for telecommunications services that we purchase, and such declines have had a favorable effect on our operating performance.”³

Imposing an asymmetrical network-sharing obligation on minority providers in such a competitive market only increases costs and decreases competition. That is why line sharing decreased broadband competition, and why abundant evidence, discussed below, shows that competition has increased dramatically over the past year. Indeed, the Commission properly explained just last year that line sharing hindered real, facilities-based broadband competition. In the Commission’s words, line sharing “skew[ed] competitive LECs’ incentives” and ran “counter to the statute’s express goal of encouraging competition and innovation in all telecommunications markets.” *Triennial Review Order* ¶ 261. Recent events, including the significant recent decline in broadband prices and the increases in broadband availability and subscribership, strongly confirm the wisdom of the Commission’s decision not to impose the costs of unbundling in a market that is already heavily competitive.

1. EarthLink fails to show any likelihood of success on the merits. EarthLink argues first that a stay is warranted because there is allegedly a “high likelihood” that the Commission will ultimately reinstate line sharing in its *Triennial Review Remand* proceeding.⁴ In fact, there should be *no* chance that the Commission would grant such relief because it would be flatly illegal.

In vacating the Commission’s line-sharing rules in *USTA v. FCC*, 290 F.3d 415 (D.C. Cir. 2002) (“*USTA I*”), *cert. denied*, 538 U.S. 940 (2003), the D.C. Circuit established that a

² Report and Order and Order on Remand and Further Notice of Proposed Rulemaking, *Review of the Section 251 Unbundling Obligations of Incumbent Local Exchange Carriers*, 18 FCC Rcd 16978, ¶ 261 (2003) (“*Triennial Review Order*”), *vacated in part and remanded*, *USTA v. FCC*, 359 F.3d 554 (D.C. Cir. 2004), *petitions for cert. pending*, *NARUC v. USTA*, Nos. 04-12, 04-15 & 04-18 (U.S. filed June 30, 2004).

³ EarthLink, Inc., Form 10-K at 10 (SEC filed Mar. 5, 2004) (“EarthLink Form 10-K”).

⁴ Earthlink Letter at 5.

proper impairment analysis in this context must consider all broadband alternatives, including intermodal alternatives. The court vacated the Commission's line-sharing requirement because this Commission improperly viewed the "service" that carriers seek to offer for purposes of the section 251(d)(2) impairment inquiry as limited to those provided over wireline facilities, *i.e.*, DSL services. *See id.* at 429. The D.C. Circuit found that the Commission could not lawfully employ such a test. To the court, the Commission's reading of section 251(d)(2) to permit exclusion of cable modem service and other broadband alternatives from the impairment analysis was "quite unreasonable" and inconsistent with the Supreme Court's admonition that the Commission "'cannot, consistent with the statute, blind itself to the availability of elements outside the incumbent's network.'" *Id.* (quoting *AT&T Corp. v. Iowa Utils. Bd.*, 525 U.S. 366, 389 (1999)). In the court's damning phrase, the Commission's failure to consider intermodal alternatives in its impairment analysis constituted a "naked disregard of the competitive context." *Id.*

This D.C. Circuit holding – a holding that the court reiterated in *USTA v. FCC*, 359 F.3d 554, 585 (D.C. Cir. 2004) ("*USTA II*") (noting that the Commission's reliance on the existence of "substantial intermodal competition" in the *Triennial Review Order* "follow[ed] our mandate in *USTA I*"), *petitions for cert. pending*, *NARUC v. USTA*, Nos. 04-12, 04-15 & 04-18 (U.S. filed June 30, 2004) – precludes any attempt by the Commission to reimpose line sharing now. When all competing broadband providers, including cable modem providers, are considered, as they must be, it would be fanciful to conclude that competitors are "impaired" within the meaning of section 251(d)(2) without line sharing. This Commission's own statistics continue to show that cable providers serve a substantial *majority* of broadband customers without access to UNEs. According to a Commission report issued just this June, more than 63% of residential and small business customers receiving 200 kbps per second service subscribe to cable modem, as opposed to just 34% that rely on DSL.⁵ Of customers that receive more than 200 kbps in both directions, 85% use cable modem, while only 13% use DSL.⁶

Nor is facilities-based broadband investment and competition limited to cable and wireline, as EarthLink wrongly suggests.⁷ The Commission itself stressed just this month that "[b]roadband Internet access services are rapidly being developed or provided over technologies *other than wireline and cable*, such as wireless and powerline."⁸ And you, Chairman Powell,

⁵ *See* Indus. Anal. & Tech. Div., Wireline Competition Bureau, FCC, *High-Speed Services for Internet Access: Status as of December 31, 2003*, at Table 3 (June 2004).

⁶ *See id.*, Table 4.

⁷ *See* Earthlink Letter at 1.

⁸ Notice of Proposed Rulemaking and Declaratory Ruling, *Communications Assistance for Law Enforcement Act and Broadband Access and Services*, ET Docket No. 04-295, RM-10865, FCC 04-187, ¶ 37 n.82 (rel. Aug. 9, 2004) (emphasis added); *see also* Kathleen

emphasized in June that “[w]e’re beginning to see greater uses of wireless mobile broadband products, such as EvDO coming into the market place. . . . These are true commercial applications that are rapidly spreading throughout the market place.”⁹

As Verizon has demonstrated in a recent filing,¹⁰ this robust competition has led to the consumer benefits one would expect. Broadband prices are falling, with DSL providers leading the way in reducing rates and increasing download speeds.¹¹ Availability and subscribership are increasing as well. Verizon alone added 10 million DSL-qualified lines last year, and it intends to add another 7 million this year. Cable operators have responded in kind with promotional and targeted price reductions and by increasing data speeds (which effectively lowers the price of bandwidth).¹² Moreover, independent analysts estimate that 5.4 million residential broadband subscribers were added between the end of June 2003 and the end of March 2004, and that approximately 1.7 million residential broadband subscribers were added in the second quarter of 2004.¹³

In these circumstances, *USTA I* prevents the Commission from concluding that competitors are “impaired” without line sharing. As the D.C. Circuit has made plain, one cannot reasonably conclude that competitors are impaired when alternative facilities are “significantly deployed on a competitive basis.” *USTA I*, 290 F.3d at 422. That is emphatically the case with broadband, as demonstrated by the Commission’s own statistics. Accordingly, the D.C. Circuit affirmed this Commission’s decision just last year *not* to mandate line sharing precisely because “intermodal competition in broadband, particularly from cable companies, means that, even if

Q. Abernathy, Commissioner, FCC, *Promoting the Broadband Future*, Keynote Address at Supercomm Conference at 2-3 (June 22, 2004) (“As a result of the consumer benefits and efficiencies, wireline telecommunications carriers, cable operators, wireless carriers, satellite operators, electric utilities, and others are racing to build out broadband networks.”), available at http://hraunfoss.fcc.gov/edocs_public/attachmatch/DOC-248688A1.pdf.

⁹ Michael K. Powell, Chairman, FCC, Remarks at the Wireless Communications Association International, Washington, D.C. at 2 (June 3, 2004), available at http://hraunfoss.fcc.gov/edocs_public/attachmatch/DOC-248003A1.pdf.

¹⁰ See Ex Parte Letter from Dee May, Vice President – Federal Regulatory Advocacy, Verizon, to Marlene H. Dortch, Secretary, FCC, CC Docket Nos. 01-338 *et al.* (July 22, 2004) (“Verizon 7/22/04 Letter”).

¹¹ See *id.* at 3.

¹² See, e.g., G. Campbell, *et al.*, Merrill Lynch, *3Q03 Broadband Update* at 2 (Nov. 3, 2003) (cable operators “are increasingly moving ‘off the rate card’, with market-specific pricing and increased use of promotional and bundled-price discounts specific to certain markets”).

¹³ See R. Bilotti, *et al.*, Morgan Stanley, *Broadband Update: Bundling is an Arms Race, Not a Price War* at 11, Exhibit 7 (July 8, 2004).

CLECs proved unable to compete with ILECs in the broadband market, there would still be vigorous competition from other sources.” *USTA II*, 359 F.3d at 580; *see id.* at 585 (“intermodal competition from cable ensures the persistence of substantial competition in broadband”).

Moreover, the record reflects that line sharing is not and has never been a significant competitive factor in the marketplace: it accounts for only a tiny fraction of the broadband market. Verizon has submitted calculations based in part on the Commission’s own statistics indicating that line sharing accounts for less than 1% of mass-market broadband lines.¹⁴ In view of this minuscule market share figure, the substantial costs associated with mandatory line sharing produced no meaningful pro-competitive benefits – and the elimination of line sharing can result in no impairment to competitors.

In this regard, it is worth noting that the Commission itself has previously recognized the centrality of evidence of real facilities-based competition, including intermodal competition, to a proper impairment analysis. The Commission “agrees” that “actual marketplace evidence is the most persuasive and useful kind of evidence” and that evidence of deployment, including intermodal deployment, is highly relevant regardless of whether those alternative facilities are “available to requesting carriers on a wholesale basis.” *Triennial Review Order* ¶¶ 93, 97. The Commission has thus established that reliance on actual competitive deployment “demonstrates *better than any other kind [of evidence]* what business decisions actual market participants have made regarding whether it is feasible to provide service without relying on the incumbent LEC.” *Id.* ¶ 93 (emphasis added). In the Commission’s own words, the relevant question when there is evidence of intermodal alternatives is whether such alternatives are “comparable in cost, quality, and maturity to incumbent LEC services.” *Id.* ¶ 97. Because there is simply no tenable argument that cable modem services do not meet that standard, the Commission’s own analysis precludes any impairment finding here.

Significantly, EarthLink has no substantive response to these dispositive legal points. Without even acknowledging, much less discussing, the D.C. Circuit’s binding holdings, EarthLink simply asserts that this argument is a “worn refrain,”¹⁵ as if there were some reason that ILECs should not continue to highlight the D.C. Circuit’s binding legal holding in vacating the Commission’s line-sharing rules. And EarthLink claims, without any statistical or other evidentiary support, that current competition is not robust enough and that there can be, at most, only two facilities-based broadband platforms.¹⁶ Those assertions are simply wrong, as demonstrated above, and they are contrary to EarthLink’s own statements to the SEC.

¹⁴ See Response of Verizon to Petitions for Reconsideration at 41-42, *Review of the Section 251 Unbundling Obligations for Incumbent Local Exchange Carriers*, CC Docket Nos. 01-338 *et al.* (FCC filed Nov. 6, 2003).

¹⁵ EarthLink Letter at 1.

¹⁶ *See id.*

Even beyond the dispositive fact that intermodal competition is thriving in broadband, just last August this Commission enunciated a series of other reasons that the statute did not permit line sharing. The Commission expressly “disagree[d]” with the conclusion in the *Line Sharing Order*¹⁷ that “purchasing a stand-alone loop would be too costly for carriers seeking to offer a broadband service.” *Triennial Review Order* ¶ 258. The Commission explained that, in light of all the potential revenues to be gained in using a whole stand-alone loop, any additional costs involved in leasing a whole loop could be offset by enhanced revenue. *See id.* The Commission further concluded that the record showed that line splitting was a “viable alternative[]” for CLECs, especially given that the Commission had found repeatedly in section 271 cases that local markets around the country are open to competition. *Id.* ¶ 259. The Commission also found that, far from “level[ing] the competitive playing field,” making the high-frequency part of the loop available as a UNE created inappropriate competitive incentives and “discourage[d]” innovation and facilities-based competition, contrary to the goals of the 1996 Act. *Id.* ¶¶ 260-261 (internal quotation marks omitted). Thus, regardless of the statements by individual Commissioners on which EarthLink places almost exclusive reliance, the binding order of this Commission establishes that there are multiple, independent reasons *in addition to* intermodal competition why line sharing is inconsistent with the 1996 Act.

The Commission’s analysis has proven to be correct. Not only have broadband prices declined and subscribership and availability increased, but also competitors have relied on full loops to offer broadband, just as the Commission predicted they would. Covad Communications has recently announced a new “dedicated-loop ADSL” offering that, according to Covad, “is ideal for customers who rely on other modes of voice communication such as Voice over Internet Protocol (VoIP) and cell phone service” because it gives them “the option to integrate VoIP directly onto the broadband line, relieving them of the need for traditional analog telephone service from the local voice provider.”¹⁸ Indeed, more CLEC broadband customers are served through whole-loop offerings than through line sharing.¹⁹

¹⁷ Third Report and Order in CC Docket No. 98-147 and Fourth Report and Order in CC Docket No. 96-98, *Deployment of Wireline Services Offering Advanced Telecommunications Capability; Implementation of the Local Competition Provisions of the Telecommunications Act of 1996*, 14 FCC Rcd 20912 (1999) (“*Line Sharing Order*”), *vacated and remanded*, *USTA v. FCC*, 290 F.3d 415 (D.C. Cir. 2002), *cert. denied*, 538 U.S. 940 (2003).

¹⁸ Covad Press Release, *Covad Launches Dedicated-Loop ADSL for Consumers and Small Businesses Nationwide* (July 6, 2004), *available at* http://www.covad.com/companyinfo/pressroom/pr_2004/070604_news.shtml.

¹⁹ *See, e.g.*, Ex Parte Letter from Susanne Guyer, Senior Vice President – Federal Regulatory Affairs, Verizon, to Marlene H. Dortch, Secretary, FCC, at 1-2, CC Docket Nos. 01-338 *et al.* (May 19, 2003) (documenting that, as of year-end 2002, in the Verizon-East region (*i.e.*, the former Bell Atlantic region), only 20% of CLEC DSL lines were provisioned using line sharing); *see also* Covad Press Release, *FCC Grandfathers Covad Line-Sharing Customers*

The advent of VoIP over the past year itself undermines any possible rationale for line sharing. Line sharing assumes that, while the high-frequency portion of the loop is used to provide data services, the ILEC will continue to use the low-frequency portion to offer voice services. But with the advent of VoIP, voice and data are no longer carried on different wavelengths. Under such circumstances, where voice is just another application over broadband, a regime in which CLECs pay little or nothing for the high-frequency portion of the loop cannot be justified. Perpetuating line sharing in a world where voice can be provided over broadband has precisely the perverse and anti-competitive effect that the Commission condemned when it eliminated line sharing in the *Triennial Review Order* – it discourages the development of competing bundles of services, including voice, because a CLEC can demand free access to the high-frequency portion of the loop *only* if the ILEC is providing voice service over the low-frequency portion. A CLEC that is able to provide a full range of broadband services – including VoIP – should be required to take, and pay for, the entire loop, or else the incentive to develop and deploy those competing services is undermined. The advent of VoIP strengthens the Commission’s conclusion in the *Triennial Review Order* that sufficient revenue opportunities exist to require data CLECs to pay for the entire loop.

The Commission may not simply disregard its conclusions in the *Triennial Review Order*, much less may it do so in the face of evidence that its policies have been enormously successful, as is the case here. As the D.C. Circuit has explained, an agency cannot “casually ignore[]” its own prior conclusions on the same issue, *Greater Boston Television Corp. v. FCC*, 444 F.2d 841, 852 (D.C. Cir. 1970), and an agency’s failure to come to grips with its own prior decisions constitutes “an inexcusable departure from the essential requirement of reasoned decision making,” *Ramaprakash v. FAA*, 346 F.3d 1121, 1125 (D.C. Cir. 2003) (internal quotation marks omitted).

Indeed, because it is clear that broadband competition is even healthier than it was at the time of the *Triennial Review Order*, EarthLink has no serious argument that changed circumstances would justify a Commission change of course on line sharing. EarthLink does not even try to show how the Commission could reasonably reconcile its decision in 2003 that line sharing runs “counter to the statute’s express goal of encouraging competition and innovation in all telecommunications markets” with a conclusion just one year later that line sharing is now pro-competitive and furthers the goals of the 1996 Act. And EarthLink’s only response to the Commission’s finding that the revenues from an entire loop are sufficient to prevent impairment is to claim that video over copper has not grown rapidly, even though narrowband voice, data,

Indefinitely (Aug. 22, 2003) (“Covad’s business customers using dedicated lines account for about 60 percent of the company’s revenues”); Charles Hoffman, President/CEO, Covad, Q2 2004 Covad Communications Earnings Conference Call – Final, FD (Fair Disclosure) Wire, Transcript 072704an.718 (July 27, 2004) (“It’s important to remember that 68% of Covad’s current revenue comes from business customers”).

and VoIP were plainly the primary revenue sources the Commission was considering. *See Triennial Review Order* ¶ 258. EarthLink also asserts without proof of any kind that ILECs' OSS are not sufficient to support line splitting, even though the Commission has repeatedly reviewed and approved those systems in section 271 proceedings.²⁰ In sum, EarthLink's arguments are facially insufficient to overcome the abundant evidence that broadband competition has flourished in the past year, thus negating any need for the Commission to create synthetic line-sharing competition.

2. EarthLink has failed to identify any irreparable harm without interim relief.

The Commission's transition plan has no effect at all on the bulk of existing Internet access customers served by line sharing because any end-user that was in place when the *Triennial Review Order* was adopted is exempted from the transition rules: CLECs will pay the same amount to serve those customers as they did on the effective date of the *Triennial Review Order* – in most cases, a charge of *zero*. *See Triennial Review Order* ¶ 264. Thus, EarthLink's assertion (at 7) that, as of October 3, 2004, "competitive LECs will pay twice the current rate to maintain existing line-shared DSL arrangements" is a gross exaggeration. The rate will change only for customers added in the preceding year. Furthermore, the result of the transition regime is to eliminate what the Commission correctly described as an "irrational cost advantage" over CLECs that purchase the whole loop and over the incumbent LECs themselves. *Triennial Review Order* ¶ 260. By "skew[ing] competitive LECs' incentives" to provide only DSL service, rather than a broader range of services, the previous line-sharing regime ran "counter to the [statutory] goal of encouraging competition and innovation." *Id.* ¶ 261. As the Commission itself said in opposing earlier petitions to stay the *Triennial Review Order*, "[i]t hardly amounts to irreparable injury for the Commission to remove such an unfair advantage" – and this is especially true when most existing customers have been grandfathered into the prior, irrational arrangements indefinitely.²¹

Nor is it at all clear that "competitive LECs will no longer be able to provision new orders of wholesale DSL via line sharing" as of October 3, as EarthLink asserts (at 7). Negotiations are underway among ILECs and CLECs to continue line-sharing arrangements on negotiated terms and conditions. In the *Triennial Review Order*, the Commission "strongly encourage[d] the parties to commence negotiations as soon as possible so that a long-term arrangement is reached and reliance on the shorter-term default mechanism" for transitioning away from line sharing would be "unnecessary." *Triennial Review Order* ¶ 265. Some of these negotiations have already born fruit: Qwest, for example, already has agreements in place with various CLECs, including Covad, to continue line sharing (and, as noted below, EarthLink also already has agreements in place with RBOCs and cable companies to reach its customers over

²⁰ *See* Verizon 7/22/04 Letter at 4 n.15.

²¹ Opposition of the FCC to Covad's Motion for Stay Pending Review at 11, *USTA v. FCC*, Nos. 03-1310 *et al.* (D.C. Cir. filed Oct. 9, 2003) ("FCC Stay Opp.").

their networks even in the absence of line sharing). These examples provide reason to be optimistic that other negotiated agreements will follow if the Commission leaves its transition mechanism in place. By contrast, extending the period in which new mandatory line-sharing arrangements may be added would undercut investment and remove incentives to negotiate. Why should data CLECs make concessions to reach market-based deals (or take the risks necessary to deploy their own facilities) if the Commission indicates that they will still be able to obtain access to the high-frequency portion of the loop at artificially low rates?

Even in the absence of negotiated agreements for line sharing, however, CLECs could provide broadband either over a dedicated loop or via line splitting. *See Triennial Review Order* ¶¶ 260, 265. Covad, for example, has touted the virtues of line splitting and the relative unimportance of line sharing. In the wake of the *Triennial Review Order*, Covad claimed to be “in a unique position to continue driving increased DSL adoption throughout the United States” because of the availability of line splitting.²² And, as discussed above, Covad has recently stressed its stand-alone loop DSL offering.

As this new offering demonstrates, the advent of VoIP undermines the assumption on which line sharing was initially based – namely, that the ILEC would continue to use the low-frequency portion of the loop to provide voice service (and would continue to derive revenue from that use). Moreover, as noted, *most* CLEC DSL revenues come from customers served via dedicated loops rather than by line sharing, and this revenue stream is utterly unaffected by the Commission’s line-sharing transition. *See Wisconsin Gas Co. v. FERC*, 758 F.2d 669, 674 (D.C. Cir. 1985) (per curiam) (“Recoverable monetary loss may constitute irreparable harm only where the loss threatens the very existence of the [petitioner]’s business.”).

If CLECs are not likely to suffer any irreparable injury, there is even less prospect that EarthLink itself would suffer any harm under the Commission’s current transition plan. Although EarthLink expresses distaste at relying on incumbent LECs for wholesale DSL, it *already* has agreements in place with BellSouth, SBC, Qwest, and Verizon to use their networks to reach its customers.²³ Hence, there is no reasonable prospect that EarthLink will be unable to continue to serve as many customers via DSL as it desires. And it bears repeating that DSL is *not* the only mode through which EarthLink reaches its customers. Although EarthLink complains (at 7) that it has had difficulty gaining access to cable modem networks, it acknowledges that Time Warner has opened its system to unaffiliated ISPs. And, although it neglects to mention them here, EarthLink also has agreements to provide broadband services

²² Covad Press Release, *Covad Extends Partnership with MCI; New Line Splitting Partnership Enables MCI to Combine Local and Long Distance Services With Covad’s DSL High-Speed Internet Services* (Sept. 2, 2003) (quoting Charlie Hoffman, Covad President/CEO), available at http://www.covad.com/companyinfo/pressroom/pr_2003/090203_press.shtml.

²³ *See* EarthLink Form 10-K at 6.

over Comcast and Bright House networks.²⁴ Hence, EarthLink faces no threat of harm whatsoever, let alone *irreparable* harm. In view of these alternative suppliers of wholesale broadband transmission, EarthLink's assertion (at 8) that "hundreds of thousands of EarthLink's broadband customers could be stranded" is grotesque hyperbole. To the contrary, not a *single* customer will be "stranded" after October 3 if the Commission allows its transition to proceed. Most existing customers will be grandfathered under their current arrangements, and those customers added in the last year will continue to be served at only 50% of the cost of an unbundled loop.

EarthLink's claim (at 8) that the Commission's transition rules would cost it "much-needed redundancy in its last-mile transport facilities" is specious. Not only does it ignore the availability of cable modem and other intermodal suppliers of broadband transport, but it also mistakenly assumes that line sharing provides redundancy. In a line-sharing arrangement, CLECs rely on the same facilities that the ILEC uses to provide broadband. An ILEC network outage today would be just as disruptive to customers served via line sharing as to those served via ILEC DSL. The supposed redundancy provided by CLECs riding ILEC loops is illusory.

3. The proposed interim relief would harm ILECs. EarthLink is quite wrong to claim (at 9) that the "line sharing *status quo* does not cause an 'injury.' " The line-sharing UNE is an illegal and unjustified encroachment on the property rights of incumbent LECs. The Commission has yet to articulate a rationale for the line-sharing UNE that has survived judicial scrutiny. In opposing petitions to stay the *Triennial Review Order*, the Commission told the D.C. Circuit less than a year ago that, "[t]o the degree the Commission reinstated any of the line sharing rules, it did so only to facilitate the transition away from line sharing."²⁵ The point is not only that the price of the UNE is too low; it is that no ILEC should have to provision the UNE at all, other than on voluntarily negotiated terms, in the absence of an impairment finding – a finding that, in the current circumstances, cannot lawfully be made.

Moreover, supporting line sharing in its current form imposes significant costs on ILECs. Complicated and expensive OSS solutions for line sharing must be maintained for relatively few orders. The continued imposition of these inefficiencies on ILECs also constitutes cognizable harm.

4. The proposed interim relief is not in the public interest. As noted above, the record reflects that line sharing accounts for less than 1% of mass-market broadband lines. These stark market share figures, plus "the fact that broadband service is actually available through another network platform and may potentially be available through additional platforms," serve to "alleviate any concern that competition in the broadband market may be

²⁴ See *id.*; EarthLink, Inc., Form 10-Q at 13 (SEC filed Aug. 9, 2004).

²⁵ FCC Stay Opp. at 9.

heavily dependent upon” line sharing, as the Commission correctly found. *Triennial Review Order* ¶ 263. Accordingly, “the costs of [line sharing] outweigh the benefits”; indeed, it is the *unavailability* of mandatory line sharing that “will encourage the deployment of new technologies.” *Id.* This is in part because requiring incumbents to provide access to the whole loop “creates better competitive incentives” than requiring separate unbundling of the high-frequency portion of the loop. *Id.* ¶ 260. Conversely, requiring line sharing “discourage[s] innovative arrangements” between carriers and “greater product differentiation” among broadband offerings. *Id.* ¶ 261. It follows that any delay in eliminating line sharing would simply impose unnecessary costs and impede innovation.

Moreover, as the Commission has recognized, a fundamental goal of the 1996 Act was to encourage competing carriers to deploy their own facilities in order fully to unleash the incentives of incumbents and competitors alike to develop innovative service and pricing options to the benefit of consumers.²⁶ There is no way to deploy *only* the high-frequency portion of a loop; facilities-based competitors would have to deploy (and pay for) the whole loop. By making available the same kind of facility that a CLEC would deploy itself in order to compete, unbundling the stand-alone loop supports Congress’s goal of encouraging facilities-based competition. In contrast, allowing CLECs to free-ride on part of the loop undermines any incentive carriers might have to deploy their own facilities, and thus subverts the purpose of the Act.

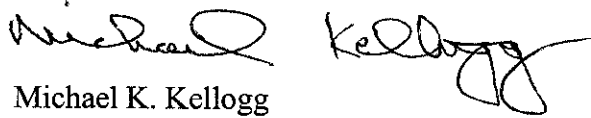
Finally, as noted above, since the Commission announced an end to line sharing, DSL prices have actually fallen and other broadband providers have responded with targeted discounts and improved service offerings. Delaying the elimination of line sharing threatens these positive trends in the marketplace, to the detriment of consumers.

²⁶ See, e.g., *Triennial Review Order* ¶ 70 (“facilities-based competition serves the Act’s overall goals”); Notice of Proposed Rulemaking and Notice of Inquiry, and Third Further Notice of Proposed Rulemaking, *Promotion of Competitive Networks in Local Telecommunications Markets*, 14 FCC Rcd 12673, ¶ 4 (1999) (“only facilities-based competition” can “fully unleash competing providers’ abilities and incentives to innovate, both technologically and in service development, packaging, and pricing”).

The Honorable Michael K. Powell
August 18, 2004
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Ex Parte CC Docket Nos. 01-338, 96-98 & 98-147

Respectfully submitted,


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BELLSOUTH APPENDIX

TAB 5

A REPORT TO THE U.S. CHAMBER OF COMMERCE

SENDING THE RIGHT SIGNALS:
PROMOTING COMPETITION THROUGH
TELECOMMUNICATIONS REFORM

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September 22, 2004

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ABSTRACT

Telecommunications is the central nervous system of the American economy. The firms in this sector provide local and long-distance voice communications, mobile phones, video, and high-speed data; invent the technologies to create and enhance these services; and manufacture the equipment to deliver them.

But since 2000, the industry has been extremely depressed. Although telecommunications accounts for only 0.9 percent of total U.S. employment as of May 2004, the 380,500 telecom and telecommunications equipment workers who lost their jobs between March 2001 and May 2004 make up 29 percent of total U.S. job losses over that period. The U.S. recovery has produced 1.4 million new jobs since August 2003, even as another 23,000 telecom jobs have been lost.

As this report shows, conflicting regulatory strategies play a key role in weakening investment incentives throughout the sector. The Telecommunications Act of 1996, which aimed to create new competition and more advanced services, has often hampered that process by crushing market forces with administrative mandates. Specifically, regulators have placed an overreliance on network-sharing regulations by dictating the prices entrants pay to use existing facilities. In turn, regulators have placed entirely too little emphasis on policy measures that would enlist new entry.

The cruel irony is that, despite regulatory impediments, strong alternatives to legacy networks are emerging. Business districts typically host multiple fiber-optic carriers, competing to provide high-capacity voice and data connections. In residential markets, the typical home is potentially served by a phone line, a cable TV line, and multiple mobile phone networks. Six national carriers, and numerous regional players, make wireless service an increasingly competitive option for fixed, as well as mobile, use. Cable television systems, whose lines pass over 96 percent of U.S. households, can also offer head-to-head fixed voice service competition. Indeed, approximately one in seven U.S. homes now chooses between receiving traditional voice service from a phone company or a cable company. Moreover, about nine in ten households can subscribe to a voice over Internet application, using a broadband connection to make voice telephone calls.

With the elimination of regulations that undermine investment incentives, place barriers in the path of consumer-pleasing applications, and dampen innovative efforts by clouding markets with uncertainty over policies, firms would unleash promising twenty-first century networks. In this report, we outline how policymakers can accomplish this and recommend specific policy reforms that will enable market forces to create the competitive telecommunications networks of tomorrow.

The reforms would yield important benefits for the overall economy. First approximation estimates, which include multiplier effects, project an increase in GDP of \$167 billion, and more than 212,000 new jobs, over the next five years, in addition to the positive impact of improved telecommunications spending on productivity growth.

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EXECUTIVE SUMMARY

OVERVIEW

Although the telecommunications industry accounts for only 0.9 percent of U.S. employment today, it was responsible for an astonishing 29 percent of net job losses suffered between March 2001 and May 2004. The industry remains mired in depression, even as the U.S. economy now exhibits expansion in virtually every other sector. Overall employment increased by 1.4 million jobs between August 2003 and May 2004; during the same period, telecom employment declined by a further 23,000 jobs.

The magnitude of lost wealth is staggering. From March 2000 to July 2004, the market capitalization of the telecommunications service industry declined by 67 percent, or \$760 billion, from \$1,135 billion to \$375 billion. During the same period, the market capitalization of the equipment makers in the communications technology sector declined 74 percent, or \$944 billion, from \$1,282 billion to \$338 billion.

A healthy telecommunications sector is crucial to U.S. economic growth. The quality of our voice, video, and data services helps drive both productivity gains and the global competitiveness of American business. Although telecommunications made up just 2.9 percent of total GDP as of 2002, communications networks are a key component of the basic infrastructure of our modern economy. Improving investment incentives here would substantially improve growth, employment, and incomes all across the economy.

This study examines how government regulation contributes to the pronounced, long-lived telecommunications slump. The study then recommends reforms to promote the creation of competitive voice, video, and data networks, to encourage new investment, and to speed deployment of innovative technologies. Finally, the study provides estimates of the impact of these reforms on capital formation, employment, productivity, and growth.

TELECOMMUNICATION'S NEW PARADIGM

Historically, American telecommunications markets were tightly regulated monopolies. Regulators not only accepted this outcome as efficient; they actively sought to discourage new challengers. In recent decades this consensus has collapsed. It was proved wrong as competitive, unregulated telecommunications networks pushed past regulatory barriers to produce enormous consumer benefits. In one prominent example, regulators, who originally thought mobile phone service to be a “natural monopoly,” licensed the service as a duopoly in the 1980s. The build out of two wireless networks demonstrated that head-to-head competition was viable. The benefits of rivalry then expanded markedly: when the FCC issued several additional wireless licenses in the mid-1990s, per-minute prices plummeted by 80 percent.

The story of mobile telephones is not unique. The price of long-distance phone calls dropped dramatically with the entry of new networks. Video programming jumped

in quality, quantity, and variety as satellite rivals began to take market share from cable TV. And residential broadband access is now available to nearly nine in ten U.S. households, thanks to a lightly regulated deployment race between cable modem service and digital subscriber lines. One might argue that competition is, in fact, the new consensus in telecommunications.

U.S. regulators are now struggling with the task of extending these deregulatory successes to the local loop—the “last mile” in telephone networks. The Telecommunications Act of 1996, reversing essential assumptions of the regulated monopoly paradigm of the Communications Act of 1934, instructed state and federal regulators to craft rules promoting last-mile competition. Policymakers have implemented vital reforms. These include elimination of state franchise monopolies for local telephone service and mandatory interconnection among carriers, guaranteeing that subscribers to new phone networks can communicate with customers of rival systems.

REGULATION AS A TAX ON CAPITAL

To further invigorate competition, however, Congress directed regulators to devise network-sharing rules that enable companies to offer local telephone service without building their own networks. Under the resale provisions, entrants could offer retail customers dialtone service delivered entirely over an incumbent phone company’s network. With the unbundling provisions, entrants could lease just those parts of the network they needed. A new rival could use the incumbent’s local loop and connect last-mile traffic to a switch that it placed in the phone company’s central office. In either instance, the Telecommunications Act would allow wholesale access prices to be regulated, a measure that would counter the incumbent’s market power.

Congress viewed mandatory network sharing as an insurance policy. Policymakers thought that if natural monopoly would stubbornly continue to prevail in some areas or for some inputs, then competitors should be able to purchase these services at reasonable wholesale prices and provide retail services. Mandatory network sharing would prevent a stalemate in which new networks would be frozen out because of the risk involved in building new systems from scratch. Once new rivals gained substantial market share, the economics of building competing platforms would presumably improve. Soon, consumers would be able to choose among alternative networks. Regulation would fade away, and market competition would rule.

But network-sharing rules have not faded away; rather, they have become embroiled in intense controversy. They have been frequently revised and continuously challenged in legal and regulatory proceedings. After more than eight years of effort, today widespread confusion exists as to their status. This uncertainty has exacerbated the decline in network investment incentives that ensued both from the tightening in credit markets after the bubble in the industry and from the generous terms extended to resellers (i.e., relatively low wholesale prices and extensive resale opportunities).

Dual capital market fiascos have resulted: investment in competitors' and incumbents' networks has sharply declined; the former because renting was cheaper than building, the latter because property rights to profits flowing from new investments were reassigned to noninvestors. Building large, modern telecom networks involves substantial outlays for "common costs." Regulations governing the use of existing networks are not easily quarantined; new infrastructure investments are inevitably regulated, too.

A policy forcing network owners to lease their assets below rates yielding a market return on investment is essentially a tax on capital. This tax affects capital in two ways. When the tax falls on existing capital (i.e., a network built before the tax was imposed), it reduces the asset's market value. The tax affects new capital by discouraging investors from creating additional network assets and from spending to maintain existing assets. As a result, telecom networks suffer from aging and increased obsolescence, similar to the deterioration of the housing stock following rent controls.

Both factors interacted with financial market pressures to exacerbate the implosion of telecom capital spending in recent years. Annual capital spending in all areas of telecommunications plummeted from a peak of \$132 billion in 2000 to just \$56 billion in 2003. The loss of capital spending due to regulation is estimated to be more than \$20 billion for incumbent operators and an additional \$2 billion to \$3.5 billion for competitive entrants. As we outline below, this forgone capital investment substantially reduces output, employment, productivity, and competitiveness for the overall economy.

PRICE DISTORTIONS AND DECLINING INVESTMENT

Much of the blame for this drastic pull-back by telecom investors lies at the feet of an ill-fitting, contradictory regulatory structure. Two policy conundrums stand out. The first is that, for fixed-line phone service, the government regulates both retail and wholesale rates, and the regimes sharply conflict. Retail rates are set such that everyone in a given state pays about the same, *without regard to cost*. This means that high-cost customers (such as Aspen, Colorado, millionaires) pay what low-cost customers (such as blue-collar apartment dwellers in Denver) pay. Overall, business and long-distance charges have been kept artificially high to pay for lower prices for residential local access, a cross-subsidy that, according to its proponents, advances "universal service."

Juxtaposed to the retail rate regulation and universal service policies are regulations that mandate wholesale access to networks be priced *on the basis of cost*. The focus on costs in the wholesale market is an attempt to send the correct economic signals to entrants so that they build networks only when they can do so more efficiently than incumbents. Combined with retail price regulation, this policy fails because entrants leasing existing facilities will be drawn to markets where regulated prices are kept artificially high rather than to those where the new rivals most efficiently satisfy consumer demand. In fact, new local competition has been relatively robust in business services, which regulators intentionally price above cost. By December 2003, new rivals

provided approximately 25 percent of local business phone service, as against 14 percent of the residential and small business market.

Entrants naturally seek to capture profits offered by regulatory pricing distortions, but this diverts the productive efficiencies market rivalry delivers. One excellent solution would be to rationalize retail pricing by charging consumers for the costs they generate. Many rural customers could see bills go higher, while the great majority of customers—urban and suburban households and businesses virtually anywhere—would see total phone charges fall. Yet rural customers need not suffer, because billions of dollars in subsidies—today largely wasted—could compensate for expected price increases. Moreover, the subsidy could be raised and distributed more efficiently. The social payoff would be enormous: better, more competitive phone services.

The second intrinsic regulatory contradiction involves discrimination against investors who create new phone networks. To encourage construction of competing systems, some regulations can be effective, including mandatory interconnection. But expanding wholesale access by mandating large discounts kills the investment incentives of incumbents, just as a price control generally deters investment. Those regulations also undermine the creation of competitive networks, because deeply discounted wholesale access to existing networks allows resellers to take market share from facilities-based entrants. Even the threat of inexpensive resale can deter the risk capital needed to build a new network to compete with existing systems.

Market data support this view. With the sharp decline of wholesale access prices (set by regulators) over the past five years, the number of resold lines has exploded. Concomitantly, the growth of facilities-based competitive lines has collapsed. And capital expenditures for networks have imploded, despite strong demand for broadband services. Incumbents and competitors have failed to attract capital to build bigger and better networks, and those firms large enough to generate their own capital are using the money for other things—for instance, to build wireless networks, to pay dividends to shareholders, or to reduce debt.

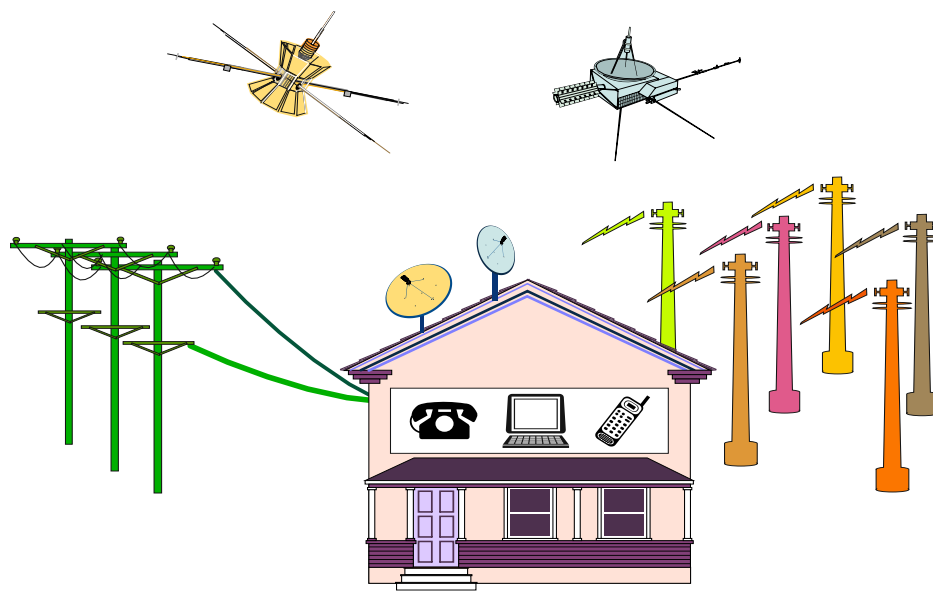
RIVAL NETWORKS ARE AVAILABLE

The economic tragedy is that the regulatory stalemate occurs just as many networks are ready and able to offer competitive phone, video, and Internet access services. Business markets demonstrate that, with heavy demand and dense usage, competitive rivals can build alternative platforms for voice and data. Even in residential markets, rival telecommunications pathways are visible. Incumbent phone companies no longer own the sole communications path to the customer's premises. A potentially competitive—*highly competitive*—marketplace is already on the horizon.

There are about 109 million U.S. households. The typical residence receives service from a telephone line provided by an incumbent local exchange carrier (ILEC)—a Baby Bell (BellSouth, SBC, Qwest, or Verizon) or an independent (such as Broadwing or SureWest). About 15 million households and businesses getting this ILEC service

receive bills from a reseller, not the ILEC. Virtually all the intense regulatory, legal, and political skirmishing—what analysts call the telecom UNE-P (unbundled network element-platform) roller coaster—has been devoted to setting the terms of this network-sharing scheme. Fortunately, however, multiple networks are now emerging to offer popular service substitutes. These include cable, wireless, and satellite platforms, as well as new applications creating virtual networks, such as voice over Internet protocol (VoIP). Figure 1 depicts these competing technologies.

Figure 1. Competitive Telecommunications Pathways to the U.S. Household



Cable

The typical house is passed by a high-capacity communications conduit owned by the local cable TV system, providing analog video, digital video, video on demand, and high-speed Internet access. Note the discrepancy in coverage:

- Cable operators offer phone service to 16 million households—of which about 2.5 million subscribe.
- Cable operators offer broadband service to approximately 97 million households—of which about 15 million subscribe.

Cable systems could add phone service with incremental investments. Yet incentives to offer telephony have proven relatively weak. This is not surprising, given the threat resellers pose by using the incumbent carrier's network at politically determined rates. A cable company anticipating revenues per subscriber of \$50 a month

from local and long-distance telephone subscriptions may well be deterred when rivals reselling the incumbent telephone company's service may offer similar services for \$40, depending on where regulators decide to fix wholesale prices. This cloud shadows a potential cable entrant's investment in telephony much as it does an ILEC's, the difference being that the newcomer avoids appropriation by simply declining to invest. Fortunately, cost and functionality advantages now presented by maturing voice over Internet technologies are large and thus are pushing major cable operators to deploy some brand of voice service to customers.

Wireless

Competitive pathways multiply with wireless technologies. Six national networks now serve the U.S. market, and consumer demand for mobility is making wireless an archrival of landline phone systems. Wireless service has already replaced about 43 percent of long-distance calls. By 2005, the United States will probably have more wireless than fixed-line subscribers; the global switchover occurred in 2001. In developing countries, wireless is now the technology of choice for new construction. In developed countries, wireless substitution is eliminating large numbers of wired connections altogether.

Satellite

While analyses of local telephone policy have often overlooked satellite communications, satellite platforms can form key elements in a more competitive marketplace. While standard phone calls suffer quality handicaps when transmitted via traditional satellite connections, direct broadcast satellite (DBS) systems have proven effective in delivering multichannel video, competing with cable TV operators. This has prompted cable operators to upgrade their systems for digital services and has helped to ignite deployment of cable modem service. In turn, phone companies have had to respond with investments in digital subscriber lines (DSL), broadband links supplied via phone lines. With VoIP technology turning broadband connections into phone lines, local loop competition is at hand. Cable's introduction of "triple play" offerings—voice, video, and high-speed data—in discounted bundles has pushed satellite and telephone companies to form alliances, bundling telephone company voice and DSL service with DBS video.

Emerging Technologies

Other promising technologies and applications appear ready to challenge the status quo. Electric power networks offer an additional distribution grid capable of transporting large quantities of data, delivering voice and video, to homes and offices. Terrestrially based fixed wireless technologies can provide additional communications links. DBS operators have begun delivering high-speed Internet access.

UNLEASHING COMPETITION AND INVESTMENT

With the ripe opportunities for competitive network development, ambitious network-sharing mandates have proven a costly distraction. Complex to evaluate, difficult to craft, and contentious to enforce, these arranged marriages dictate that a network host its rival on terms established by administrators. To enforce cooperation among parties with diametrically opposite interests, regulators predictably impose more and more comprehensive regulations. Rulemakings are stacked upon rulemakings, followed by complaints, petitions for reconsideration, litigation, appeals, and appeals of the appeals. Uncertainty is rampant as regulators and courts declare, amend, overrule, and then reconstitute various rules. Risk increases, and capital investment is deterred. This has important effects on the overall economy by reducing output, employment, and productivity. Lawyers and lobbyists profit—while consumers wonder what happened to the advanced networks and innovative services “deregulation” was supposed to bring.

Given the observed effects of this approach and the demonstrated availability of competitive networks, policymakers now have a golden opportunity to reform telecommunications rules by substituting market forces for regulation. In this report, we describe the internal contradictions in the existing regulations and recommend an exit strategy. These policies will generate economically productive investment, produce efficient, price-lowering competition, and stimulate innovation in advanced telecommunications services. Recommended reforms, which require regulatory or legislative action at either the state or federal level to achieve, fall into two categories: ending policies that discriminate among networks and ending price distortions in telecommunications markets.

Ending Policies That Favor One Network over Another

This category of reforms entails four measures:

1. Phasing out wholesale access based on *theoretical* costs in favor of the basic price-setting mechanism now used for total service resale and sunseting such price controls (perhaps after three to five years).
2. Expeditiously making at least 438 MHz of additional prime radio spectrum available for flexible use by competitive wireless licensees.
3. Declaring both cable modem and digital subscriber line services to be information services, which are not subject to common carrier regulatory obligations, and preempting state regulation of these services under the guise of “open access.”
4. Extending the FCC declaration of Internet-only VoIP as “information services” not subject to regulation to all VoIP services and preempting Internet phone service from state regulation, specifically leaving quality of service unregulated.

Ending Price Distortions

This category of reforms entails two additional measures:

1. Raising funds for universal service in a competitively neutral manner. Funds should be appropriated from general revenues or be generated via a relatively nondistortionary telecommunications tax, for example, a fixed monthly fee levied on each telephone number.
2. Distributing universal service funds via consumer vouchers, not with payments to telephone companies, to allow competition among suppliers and choice for customers.

This reform package would benefit virtually all telephone users and produce enormous economic gains. Not only would social goals such as universal service continue to be met, but competition-enhanced efficiency would markedly increase the productive use of telecommunications networks. Competitors would shift unproductive investments in regulatory process toward efficient investments in new networks and innovative applications. The sector—now heavily taxed—would be unburdened. U.S. businesses would witness dramatic cost savings, as artificially high business phone rates would fall. Consumers would gain from these efficiencies, as well as from lower prices and myriad innovations in residential market telecom services.

INCREASED CAPITAL SPENDING STIMULATES JOB CREATION AND GROWTH

Reforming telecom policies would lead to dramatic increases in capital spending, output, and employment in the sector. On the basis of our estimates, the changes outlined above could generate a total of \$58 billion in incremental capital spending on network assets over the next five years by incumbent local exchange carriers, facility-based competitive local exchange carriers, wireless companies, and cable operators.

Increases in capital spending also lead to increases in output and employment in other industries—the multiplier effect described in macroeconomics textbooks. Standard Bureau of Economic Analysis multipliers, for example, suggest that each additional \$1 of telecom capital spending leads to \$2.86 in extra output, while every \$1 million rise in telecom capital spending leads to 18.2 new jobs. On the basis of our estimates, the proposed reforms would add \$167 billion to output and would increase average employment levels by more than 212,000 jobs over the next five years.

LOWER PRICES BENEFIT CONSUMERS AND BUSINESSES

Less direct, but no less real, are the effects of enhanced communications networks and lower prices for telecom services on the productivity, employment, costs, profits, and market values of the businesses that use information services as inputs in producing nontelecom outputs. Our proposed increase in available radio spectrum, for example, would lead to a reduction in wireless prices of approximately 50 percent, allowing users

to increase their use of wireless minutes by 95 percent. By the end of the forecast period, annual increases in consumer surplus would exceed \$77 billion; nontelecom businesses would see costs fall and profits increase.

DEREGULATION IMPROVES PRODUCTIVITY

The most powerful impact of the proposed telecom reforms will most likely occur indirectly through the enhanced productivity and competitiveness of American workers and companies. Reforming regulations to encourage investment in new high-speed networks will both reduce costs and improve service quality for U.S.-based companies. This factor-substitution effect would be especially important in professional services, technology, healthcare, education, and other knowledge-based industries, which increasingly drive U.S. growth and which will constitute the battleground in global outsourcing for years to come.

A consensus has emerged among economists that information technology investments have been the principal drivers behind the extraordinary doubling of productivity growth of U.S. workers since 1995 and that advances in information and communications technology may account for as much as three-fourths of overall labor productivity growth since 1995. High-speed communications systems have helped corporations pursue the restructuring activities known variously as reengineering, demand-flow manufacturing, lean manufacturing, speed-to-market, or cycle-time reduction. These strategies show up as reduced inventories, lower working capital, improved product quality, and increased output per hour of work—the key drivers of long-run increases in living standards.

Investment in high-speed telecom networks and other information technology capital may be responsible for nearly one full percentage point of the annual increase in U.S. productivity since 1995. Yet, the telecom-driven productivity boom has mainly been restricted to large companies and urban areas that have access to high-speed telecom networks. The capital spending that would likely take place with our proposed regulatory reforms would bring the advantages of high-speed telecom networks to small companies in towns across the country, which produce more than half of GDP and account for 75 percent of job creation, would generate a second wave of productivity growth of as much as 0.25 percent per year. At current GDP levels, this productivity boost would add \$93 billion per year to GDP, or a total of \$467 billion in additional goods and services over the next five years.

The total impact of the telecom reforms recommended in this report is the sum of the demand impact of increased capital spending on network assets plus the supply impact of increased productivity growth. Together, our estimates suggest that telecom reforms have the potential to increase average annual GDP by \$127 billion per year over the next five years by adding \$634 billion in additional goods and services and increasing average employment levels by over 212,000 jobs over the same period.

SUMMARY

We describe the state of the telecommunications industry and the current regulatory environment. We outline a set of regulatory reforms that would invigorate the sector and deliver large benefits to consumers, workers, and businesses throughout the U.S. economy. They are summarized in Table 1.

Table 1. Recommended Regulatory Reforms

1. Phase out mandatory network-sharing rules and, more immediately, end regulated wholesale rates set at theoretical costs.
2. Make 438 MHz of prime radio spectrum available for commercial wireless operators.
3. Exempt high-speed cable modem and digital subscriber lines from common carrier regulations.
4. Make Internet services not subject to state phone service regulations.
5. Raise funds for universal service directly from general tax revenues, rather than from hidden costs that penalize telecommunications competition and the growth of network services.
6. Distribute universal service funds directly to targeted consumers.

We also create rough empirical estimates of the magnitude of the benefits that would follow such deregulatory reforms. See Table 2.

Table 2. Point Estimates of Economic Impacts from Proposed Regulatory Reforms

1. \$58 billion in new capital investment over five years.
2. Investment-led increases in economic growth that result in GDP increases of \$167 billion over five years.
3. Increased productivity, adding an additional \$467 billion to GDP.
4. A combined effect of both supply and demand channels totaling \$634 billion of additional goods and services, including \$113 billion in new tax revenues over five years.
5. An increase in average employment levels by more than 212,000 jobs.
6. Added consumer value from price competition and innovative new services.
7. Enhanced U.S. competitiveness in the global marketplace.
8. Accelerated rollout of new technologies and advanced networks in knowledge-based industries and applications.
9. Achievement of social goals such as universal service.

No change is easy to make. It will take forceful action by policymakers to effect these reforms. Each year of delay will cost the U.S. economy about \$12 billion of investment spending and about \$33 billion of GDP and will deter the creation of more than 212,000 jobs.

I

INTRODUCTION

Telecommunications regulation has experienced a paradigm shift. Where policymakers had long viewed networks as natural monopolies requiring heavy government oversight, new technologies emerged in competitive environments. When regulators first considered cellular systems, for example, they assumed that monopoly was efficient. The eventual license allocation provided for a duopoly, which later—when licenses for personal communications services (PCS) were issued—gave way to the establishment of six national networks. Today mobile phone service is the “poster child for market competition.” The Telecommunications Act of 1996 aimed to advance this new reality to the core of the industry: local telephony. The act abolished state phone monopolies and directed existing networks to accept the traffic upstarts created. To guarantee that competing networks could offer “last mile” rivalry, network-sharing rules allowed entrants to use incumbents’ facilities. After eight years, however, these rules are in disarray. Fortunately, emerging networks allow markets to replace government regulators and thus extend the new competitive paradigm.

The idea that competitive market forces prove superior to government regulation is a compelling one. Yet, in telecommunications, a counterclaim has long held sway: that network technologies work best when monopolies regulated by government provide essential services. Important economies of scale and key social policies are implicated, and many analysts have argued that unregulated markets present special problems in the sector. Hence, the quandary: Should policymakers welcome innovative rivals? Or should communications systems operate on terms devised by regulators?

THE DEATH OF “NATURAL MONOPOLY” AND THE BIRTH OF MULTIPLE NETWORKS

The conflicting visions clashed in the wireless market. The Federal Communications Commission (FCC), sympathetic to the “natural monopoly” argument, found in 1974 that “competing cellular systems would not be feasible” and that only existing phone carriers had the ability to provide new wireless networks. Hence, the commission determined that each cellular license would go to an existing (wireline) monopoly phone franchisee, one per market.¹

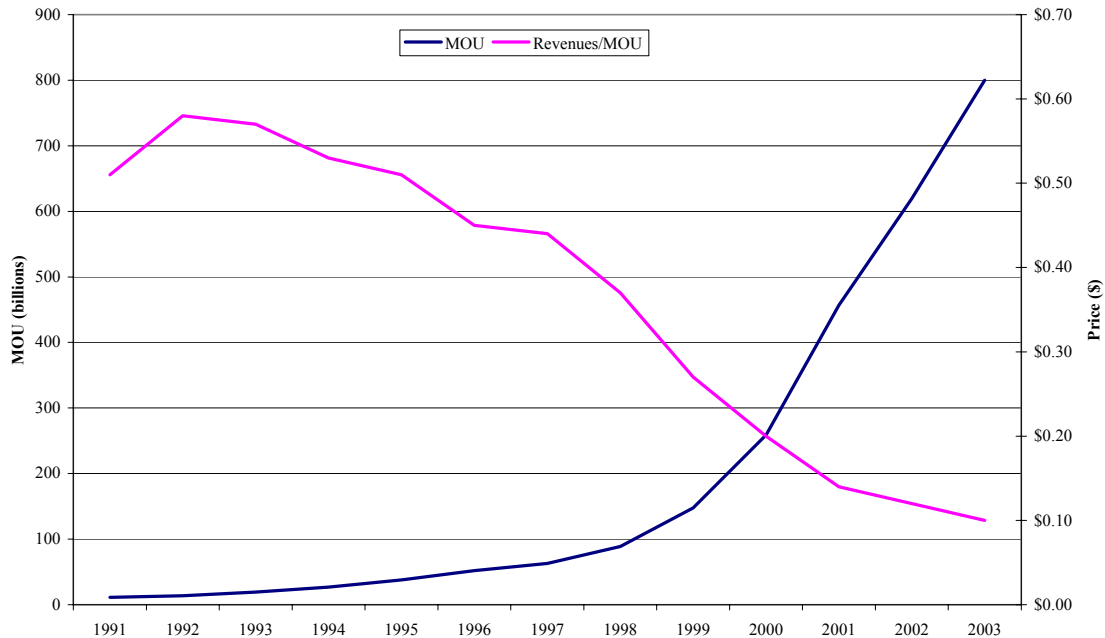
Yet, the following year, the FCC modified its policy and authorized nonwireline carriers to apply for the cellular licenses issued one per market.² Still, the debate continued. Finally, in 1981, the FCC threw caution to the wind and authorized a second

¹ Federal Communications Commission, *An Inquiry Relative to the Future Use of the Frequency Band 806–960 MHz, Second Report and Order*, 46 F.C.C. 2d 752, 760 ¶ 21 (1974).

² Federal Communications Commission, *An Inquiry Relative to the Future Use of the Frequency Band 806–960 MHz, Memorandum Opinion and Order*, 51 F.C.C. 2d 945, 946 ¶4, 953–54 ¶¶30–32 (1975).

cellular license in each of 734 U.S. markets.³ The commission issued permits, most via lotteries, in 1984–1989.

Figure I-A. U.S. Wireless Prices and Minutes of Use: 1991–2003



Source: Cellular Telecommunications & Internet Association, *Wireless Industry Indices Semiannual Data Survey Results* (Aug. 2002); http://www.ctia.org/public_policy/statistics/index.cfm/AID/10030.

It is difficult to remember how sharp a deviation from orthodoxy this was. Two decades later we can see what regulators could then only ponder: multiple networks are efficient. In 1995–1996, the FCC awarded six new licenses for personal communications services in each market. Firms invested tens of billions of dollars in new platforms to challenge the erstwhile cellular duopoly. Rather than succumb to the advantages enjoyed by incumbent wireless licensees, half of which were subsidiaries of local (fixed-line) phone carriers with which PCS entrants had to interconnect, the new networks prospered—and forced the incumbents to slash prices and improve service. In December 1995, the average price per minute of use (MOU) in wireless was 50¢; by December 2003, it had fallen to just 10¢.⁴ (See Figure I-A.) By then, six national wireless networks had emerged (AT&T Wireless, Cingular, Nextel, Sprint PCS, T-Mobile, and Verizon Wireless) as well as several regional networks (e.g., U.S. Cellular and Alltel) and a number of resellers (e.g., Virgin and TracFone). In three decades the conventional wisdom has flipped: what in 1974 appeared a natural monopoly looked—in 2002—in FCC Chairman Michael Powell’s words, to be “the poster child for market competition.”⁵

³ Federal Communications Commission, *Cellular Report and Order*, 86 F.C.C. 2d 476 ¶ 15; 482–83 ¶¶ 27–29 (1981).

⁴ Cellular Telecommunications and Internet Association data (May 2004); <http://www.ctia.org>.

⁵ Michael Powell, Dialogue with Thomas Wheeler, President, Cellular Telecommunications and Internet Association, at the National Association of Cellular Telecommunications and Internet Association, Orlando, Florida (Mar. 19, 2002).

Conventional wisdom was being revised elsewhere. The Ford Administration filed the famous antitrust suit, *U.S. v. AT&T*, in November 1974, at a time when one company essentially controlled local and long-distance telephone service, as well as telephone equipment manufacturing and research and development, in the United States. That suit ended on January 8, 1982, when AT&T agreed to divest its local telephone exchanges on January 1, 1984. By then, the emergence of rival long-distance networks was well underway. Telephone equipment markets, opened to competition with FCC mandates for “plug ’n play” interfaces in the 1970s, were already flooded with competitive choices. Data traffic was exploding in volume, and soon—following the personal computer revolution—mass-market e-commerce would arrive and bring with it thousands of online competitors.

In parallel developments, new wireline systems were created to deliver video service to households desiring alternatives to over-the-air broadcasting. Federal policies resisted the foray and protected TV stations until the deregulation wave of the late 1970s. Cable TV operators then wired the country for multichannel video. By 1988, more than one-half of U.S. households subscribed, up from only 9 percent of households in 1972.⁶ Cable’s success provoked a competitive response of its own; national satellite TV platforms were launched in 1994 (DirecTV) and 1996 (EchoStar). By the mid-1990s, the notion that CBS, ABC, and NBC formed a tightly knit oligopoly appeared quaint.

THE TELECOMMUNICATIONS ACT OF 1996

About to enter was the Telecommunications Act of 1996, a sweeping revision of the Communications Act of 1934. The past era’s formative assumption was that monopolies would deliver efficient network technology, while administrative controls would discipline operators’ rates. At that time, policymakers also assumed that without strict regulation firms would underprovide such desirable social goods as universal service, an affordable telephone connection to everyone in the nation.

But the power of those assumptions faded with time. The marketplace success of multiple network rivals across the telecommunications landscape—in wireless communications, consumer equipment, long-distance service, and television—demonstrated that consumers benefited when markets were open to new rivals. Monopoly platforms were not, it seemed, all they were cracked up to be.

In 1996, bipartisan agreement was reached that it was time to revise assumptions; the result, the Telecommunications Act of 1996, emerged. Indiana University law professor Michael Meyerson described the legislation in terms of competition and technological innovation:

This law represents a vision of a telecommunications marketplace where the flexibility and innovation of competition replaces the heavy hand of

⁶ Dominic Toto, U.S. Bureau of the Census, *Job Growth in Television: Cable versus Broadcast, 1958–99*, MONTHLY LAB. REV. (Aug. 2000), at Table 5; <http://www.census.gov/population/socdemo/hh-fam/tabHH-1.pdf>.

regulation. It is based on the premise that technological changes will permit a flourishing of telecommunications carriers, engaged in head-to-head competition, resulting in a multitude of communications carriers and programmers being made available to the American consumer.⁷

This legislation was the logical progress of a long march. Where the 1950s had seen an end-to-end telephone monopoly oppose use of any “foreign” equipment (equipment not manufactured by the Bell System’s Western Electric company), including the “Hush-A-Phone” attachment (a rubber cup⁸ that fastened onto a handset and allowed a caller to speak without being heard by someone nearby), micromanaged markets ultimately proved deficient. In 1996, University of California economist Joseph Farrell, then the FCC’s chief economist, explained:

[T]elephone regulation, like the tax code, has grown unwieldy, unmanageable, inefficient and dysfunctional. It’s time to find an alternative. Competition is the greatest technique ever invented to bring about innovation, low prices, choice, and efficiency. If we can efficiently create competition in this so-called natural monopoly, we’ll have done a great thing.⁹

LAST-MILE COMPETITION

The central feature of the Telecommunications Act of 1996 was the policy to promote competition in the “last mile.” This is the point at which users connect to phone networks; once on the network, communications go wherever the interconnections link. In the well-traveled backbones of this communications grid, alternative pathways traverse long distances. But at the homes and small offices where most users first connect, links are less traveled. Monopoly was thought “natural.” The Telecommunications Act decreed that it was not.

But Congress did not propose unregulated competition. To help new competitors start up, the act imposed network-sharing rules that allowed entrants to piggyback on incumbents’ connections and resell service. A competitor could provide service either with a “total service resale” (TSR) package, with the competitor retailing phone service delivered entirely over the incumbent’s network, or the entrant could use just part of the existing network. This latter approach, called unbundling, gives rivals access to segments of the incumbent local exchange carrier (ILEC) facilities such as the local loop that wires end-users into the network.

The Telecommunications Act was designed to jump-start competition. Mandatory network sharing would be a “stepping stone” that would provide capital so

⁷ Michael Meyerson, *Ideas of the Marketplace: A Guide to the 1996 Telecommunications Act*, 49 FED. COMM. L. J. 252 (Mar. 1997); <http://www.law.indiana.edu/fclj/pubs/v49/no2/meyerson.html>.

⁸ Joseph Farrell, *Creating Local Competition*, 49 FED. COMM. L.J. 201 (Nov. 1996); <http://www.law.indiana.edu/fclj/pubs/v49/no1/farrell.html>.

⁹ *Id.*

that rivals could eventually build their own networks. With multiple choices then confronting consumers, regulation would become superfluous.

The act provided that state regulatory commissions would set wholesale pricing and access rules by using specific guidelines established by the FCC. The act called for this regulation because rules giving new rivals the right to share existing networks would be rendered moot if the incumbents themselves set prices or other terms of use so as to discourage all new entry. Rate regulation was to establish reasonable prices for wholesale network access—“wholesale” because new service suppliers were using existing facilities to compete for “retail” customers.

The two resale approaches have distinct rate-setting regimes. TSR prices are determined based on the regulated retail price of service minus the avoided costs of the incumbent carrier (cost savings from having another firm provide marketing and customer service). Set in the late 1990s, these generally yield entrants discounts (from retail prices) of 15–25 percent.¹⁰

Access to unbundled network parts involves more complex rules. First, regulators must decide which pieces of the network are to be offered separately; these are called unbundled network elements, or UNEs. They include the local loop, switching, and transport (taking traffic from the phone company central office to distant destinations or other networks).

Then, regulators must set wholesale prices for each UNE. The framework adopted by the FCC uses the theoretical costs of an ideally efficient new network, a model known as TELRIC (total element long-run incremental cost).¹¹ Because existing networks are built with older technology and may not be optimally configured, given changing demand and supply conditions (or deployment inefficiencies), wholesale prices are set below an incumbent’s actual costs under TELRIC rates.

While the original idea of unbundling was that the entrant would want to purchase access to elements of the incumbent’s network—e.g., local loops—to combine with other elements it would provide—e.g., switching and transport to distant nodes—regulators developed a package that offered all unbundled network elements in a new bottom-up resale program called UNE-P (unbundled network elements-platform). This package was

¹⁰ *How Much Pain from UNE-P?* UBS WARBURG (Aug. 20, 2002), at 6.

¹¹ Alfred E. Kahn, who has long analyzed the regulation of U.S. public utilities, underscores the key point in his colorful depiction of the rule as “TELRIC-BS.” The appended acronym is said to stand for “blank slate,” which captures perhaps the key pricing element: costs are determined by regulators to be what a most efficient network would incur if built today. Since prices are periodically reset and costs, driven by technological advance, tend to fall over time in telecommunications networks, network owners will predictably recoup less than the costs they incur when the facilities they create are rented in future periods. Alfred E. Kahn, *Letting Go: Deregulating the Process of Deregulation or Temptation of the Kleptocrats and the Political Economy of Regulatory Disingenuousness*, Institute of Public Utilities and Network Industries (Michigan State University, 1998). See also Robert S. Pindyck, *Mandatory Unbundling and Irreversible Investment in Telecom Networks*, NATIONAL BUREAU OF ECONOMIC RESEARCH WORKING PAPER w10287 (Feb. 2004).

similar to TSR but was priced much lower. Equity analysts estimate that the average retail discount for wholesale access is about 50 percent—at least twice as large as under the TSR approach.¹²

Cornell University economist Alfred E. Kahn notes that UNE-P is an oxymoron, because the platform is the *reassembly* of the parts of the network that regulators *disassembled* (unbundled) to assist competitive entry.¹³ After UNE-P started becoming available at relatively low TELRIC prices in 1999–2000, this category of competitive lines grew very rapidly relative to others. By 2004, market analysts estimated that the United States had about 29 million competitive local exchange carrier (CLEC) lines (compared with about 152 million ILEC lines),¹⁴ of which:

- about 16 million were UNE-P;
- about 2 million were TSR;
- about 7 million were provided over competitive networks, including approximately 3 million cable telephone lines; and
- about 4 million used ILEC local loops but otherwise the facilities (switches, transport, etc.) of the CLEC, an approach called UNE-L.¹⁵

PITFALLS OF SHARING MANDATES

Hence, as UNE-P lines have increased rapidly in recent years (going from virtually zero in 1999¹⁶ to now accounting for more entry than all other competitive lines combined), facilities-based entry has flattened. In econometric tests, the level of UNE-P subscribership in one period does not help predict the level of facilities-based competitive subscribership in the next period (or the following one). Rather than provide a stepping stone to new entry, the UNE-P regulatory offering appears to crowd out new networks. In particular, cable telephony—available to virtually any U.S. household with only modest incremental investment—is stymied. While cable operators invest aggressively to upgrade systems for digital cable and now offer high-speed Internet access to about 90 percent of U.S. households, they have generally refrained from building out phone service, which is available to only about 15 percent of homes. See Table I-A.¹⁷

¹² *The Far-Reaching Impact of UNE-P Regulation*, MOODY'S INVESTORS SERVICE (Oct. 2003), at 5.

¹³ ALFRED E. KAHN, LESSONS FROM DEREGULATION: TELECOMMUNICATIONS AND AIRLINES AFTER THE CRUNCH (AEI-Brookings Joint Center for Regulatory Studies, 2004), at 23.

¹⁴ Federal Communications Commission, *Federal Communications Commission Releases Data on Local Telephone Competition* (June 18, 2004); http://www.fcc.gov/Bureaus/Common_Carrier/Reports/FCC-State_Link/IAD/lcom0604.pdf.

¹⁵ Patrick Brogan and Scott Cleland, *Facilities-Based CLECs Benefit from Migration away from UNE-P*, PRECURSOR BULL. (July 7, 2004).

¹⁶ Federal Communications Commission, Wireline Competition Bureau, Industry Analysis and Technology Division, *Trends in Telephone Service* (May 2004), at Table 8.4; www.fcc.gov/wcb/stats.

¹⁷ FCC data for year-end 2003 set cable telephony subscribership at 3.2 million lines. This implies that each subscribing household takes about 1.33 lines.

Table I-A. Broadband and Telephone Subscribers for Top Ten Cable TV Operators (Year-End 2003)

Service	Passings	Subscribers	Availability	Penetration	Net Adds (2003)	Net Adds (2002)
Broadband	96,750,000	15,338,000	91%	15.9%	4,486,000	4,217,000
Telephony	16,400,000	2,375,000	15%	14.5%	156,000	685,000

Source: Leichtman Research Group, *Research Notes* (First Quarter 2004).

Moreover, the rule-setting process has proven extremely quarrelsome, with substantial public and private resources diverted from productive enterprise. Says one analyst: “You have a total Hatfield and McCoy feud. This is an eight-year, claw-your-opponent’s-eyes-out battle regulatorily, legally, and politically. If they could have settled this, they would have, a long time ago.”¹⁸

The result of the contentiousness is that the status of UNE-P is now very much in doubt. In the eight years following the Telecommunications Act of 1996, there have been several attempts to create UNE rules and a large number of federal and state regulatory proceedings addressing UNEs. Yet, as of mid-2004 no “controlling legal authority” prescribes the terms on which an incumbent carrier must rent its network to rivals.

Wharton professor and former FCC chief economist Gerald R. Faulhaber notes, “The extensive regulatory proceedings and court challenges of the outcomes has demonstrated that the market boundary Congress sought to define in the Telecommunications Act is anything but simple, involving such complex transactions costs as to be virtually unregulable.”¹⁹ Even if local exchange carriers were to wholly divest operations outside their (regulated) local loop facilities, he contends, “the hope that competition would arrive in the local loop market on the wings of unbundling seems optimistic in the extreme.”²⁰

Reviewing successful competitive episodes in numerous telecommunications markets, Faulhaber finds that “successful entry usually occurs with a new business model and often a new technology. Such ‘category killers’ break the mold of incumbents, bringing new features and functions to customers, perhaps from related markets. Fortunately, there are several likely candidates for ‘category killers’ in telephony.”²¹

Underpricing access to existing facilities *raises* the relative cost of new facilities and signals the market to embrace resale over *efficient* investment in new “category killers.” This, in turn, undermines the transition to facilities-based competition and locks in extensive, costly regulation, for the simple reason that the success of rival telecommunications companies is now highly dependent on how regulators set terms and conditions. This was exactly the result to be avoided, according to Stanford University economists Gregory L. Rosston and Roger G. Noll. In commenting on the Supreme

¹⁸ Ellen Simon, *Phone Competition Dials up a Battle Royal*, WASH. POST (May 2004).

¹⁹ Gerald R. Faulhaber, *Policy-Induced Competition: The Telecommunications Experiments*, 15 INFO. ECON. & POL’Y 73 (2003), at 92.

²⁰ *Id.* at 93.

²¹ *Id.*

Court's May 2002 decision²² to uphold the use of theoretical costs (TELRIC) when pricing wholesale access, they wrote:

[T]he decision permits a test of whether the stepping-stone theory of local access entry is valid. While the outcome of this experiment is uncertain, two possible outcomes are likely to be good for consumers. One is that facilities-based competition in wire-line access, with entrants eventually providing switching and other intelligent network functions, emerges from UNE-based entrants. The second is that wireless services make local telephone access competitive even if wire-line competition remains very limited. In either case, local access regulation can be replaced by competition.

The third possible outcome is that when the dust settles, most local access competition will take the form [of] resale of the incumbent's facilities. In this case, consumers are not likely to benefit, and regulation will, if anything, grow as regulators are called upon to resolve disputes between incumbents and resellers.²³

The results of the test Rosston and Noll described are now observable: UNE-P growth does not appear to be associated with increased investment in incumbent or competitive networks.

NEW FORMS OF COMPETITION

The network-sharing regulatory strategy, designed to spur competition, conflicts with the aim of establishing new networks, and in many telecom sectors where network-sharing policies do not exist, competition flourishes. Take wireless. Six national wireless telephone networks, now serving over 164 million subscribers, are becoming an excellent alternative to fixed-line service. A substantial portion of long-distance traffic in the United States has already migrated. It is estimated that about 5 percent of the approximately 109 million U.S. households have disconnected their traditional phone service altogether and rely solely on their mobile phones.²⁴ Another 6 million households are predicted to do so over the next two years.²⁵ Industry experts believe that ILECs will continue to see revenue losses directly attributable to wireless substitution.

²² *Verizon Communications v. FCC*, 122 S. Ct. 1646 (2002).

²³ Gregory L. Rosston and Roger G. Noll, *The Economics of the Supreme Court's Decision on Forward-Looking Costs*, REV. NETWORK ECON. 81 (Sept. 2002), at 88–89.

²⁴ SBC, *The Status of Competition in Ohio* (May 2004), at 5. See also Scott Ellison, *Wireless Displacement of Wireline Access Lines Forecast and Analysis, 2003–2007*, IDC (Aug. 2003), at 16. FCC data also reveal that the total number of fixed lines in the United States declined by 10 million between December 2000 and June 2003, although some substitution is accounted for broadband. Ben Charny, *The Price of VoIP's Thriftiness*, CNET NEWS.COM (July 19, 2004); <http://news.com.com/2100-7352-5273275.html>.

²⁵ *Fixed Minutes Go Mobile—But Don't Cut the Cord*, TELECOMASIA.NET (June 1, 2004); <http://www.telecomasia.net/telecomasia/article/articleDetail.jsp?id=97278> (citing report by Advanis).

Because of the high value consumers attach to mobility, as well as differing supply side characteristics, wireless networks appear to have been little deterred by fixed-line network-sharing rules. Cable telephony is another story. As noted, cable TV operators currently provide about 3.2 million local telephone lines (to about 2.4 million households). These are largely supplied via standard telephone wires run to customers' homes alongside coaxial cables delivering video service. Recently, increased efficiencies became possible via the maturation of voice over Internet protocol (VoIP) technology, which enables voice calls to be carried over cable modems with a relatively small additional capital outlay. Yet, widespread regulatory uncertainty exists as to how the government will tax and regulate VoIP, and some operators and investors are waiting to see how these decisions are made before aggressively moving to mass-market deployment. Moreover, pricing distortions (with regulated wholesale prices in the competitive medium) may become even more important as new cable-telephone strategies are weighed:

The crux of the problem for cable is this. Thanks to UNE-P regulations and the entrance of U.S. long-distance companies into local telephony, lifeline plain old telephone service (POTS) is already a commodity. And at the other end of the spectrum, the advanced calling features and mobility options offered by Session Initiation Protocol (SIP) players like Vonage blow POTS out of the water for early adopters. PacketCable 1.x implementations fall between these two categories. They usually do not match the reliability of POTS, or even the pricing anymore. Nor do they match the features of IP [Internet protocol] pure-plays like Vonage. In other words, in IP telephony, PacketCable 1.x essentially offers consumers the worst of both worlds.

On the UNE-P side, major [long-distance operators] like AT&T, Sprint, and MCI are now all selling their own unlimited local and long-distance consumer POTS service bundles for under \$50 a month (taxes excluded). These plans, like AT&T One Rate USA, The Neighborhood by MCI and Sprint Complete Sense, often include value-added features like voicemail, caller ID, call waiting and three-way calling. For the low end of the market, they offer even simpler bundles for under \$30 per month. One has to wonder: Why would most mainstream consumers risk going to cable IP phone service when they can switch to AT&T for a package that is cost-comparable?²⁶

While the development of wireless networks may not suffer the same disincentives as those driven by UNE-P, regulatory constraints are tight and counterproductive for another reason: spectrum scarcity. If more bandwidth were made available for licensees, wireless phone service would cost even less, and operators would offer much more competitive data service, including broadband Internet access. Yet, virtually alone among advanced industrial economies, the U.S. government allocation for

²⁶ Michael Harris, *Cable's IP Telephony Conundrum: The Industry's Postponed PacketCable 1.x Push May Prove Too Little, Too Late*, CABLE DATACOM NEWS (Apr. 2004); www.cabledatacomnews.com.

mobile phone licensees is under 200 MHz—about the bandwidth that would be expected of a country like Peru with average per capita income of approximately \$5,000 per year. By contrast, members of the European Union average between 250 and 300 MHz. Germany allocates 302 MHz, the United Kingdom 340 MHz, and the Netherlands 355 MHz.

In the wake of past policy errors lies tremendous opportunity. The FCC has spent eight years inconclusively drafting and redrafting network-sharing rules, with ill effects spilling over to capital markets. But the time has not been entirely wasted; in markets and laboratories around the world, technologies have been moving forward. Today, network competition for last-mile connections, both voice and data, is already taking substantial market share. The emerging alternatives offer the benefits of retail competition without the distortions of price signals set by regulators rather than by markets.

This points to sustainable, efficient rivalry, with incumbent carrier phone lines challenged by cable telephony (including VoIP over cable modem broadband service) and by mobile wireless. Numerous other competitors wait in the wings or are already operating on the margins, including satellite broadband (delivered to about 228,000 households today),²⁷ fixed wireless (with about 140,000 subscribers),²⁸ and broadband over power lines (BPL), now in trials. With VoIP maturing, any high-speed connection becomes a competitor to voice service offered by the local telephone exchange.

Invigorating these ready and able competitive platforms becomes the obvious regulatory exit strategy. Fortunately, these “category killers” are ready for prime time and are already attracting millions of customers in head-to-head rivalry. This report details how policies focused on mandatory network sharing deter the emergence of viable long-term competition and asserts how critical it is to the health of the U.S. economy to resolve the conflict in incentives yielded by telecommunications regulation.

²⁷ Legg Mason, 2003: *A Banner Year for Broadband as DSL Gains Momentum* (Mar. 5, 2004). Backup data were provided by Legg Mason.

²⁸ As of year-end 2003, the FCC has found that there were about 367,000 “satellite or wireless” subscribers to broadband service; subtracting the DirecTV subscribership yields a residual of approximately 140,000. Federal Communications Commission, *High-Speed Services for Internet Access: Status as of December 31, 2003*, Industry Analysis and Technology Division, Wireline Competition Bureau (June 2004), at Table 1; http://www.fcc.gov/Bureaus/Common_Carrier/Reports/FCC-State_Link/IAD/hspd0604.pdf.

II REGULATING TELECOMMUNICATIONS COMPETITION

The Telecommunications Act of 1996 ended state telephone monopolies and allowed new local phone carriers to exchange traffic with established networks. While those two reforms have been successful, measures to jump-start last-mile competition through mandatory network sharing have been extremely difficult to craft and have resulted in fierce intraindustry disputes. Now, more than eight years after passage of the Telecommunications Act, the courts have struck down the FCC's framework for determining which network pieces are available for entrants so the industry is without wholesale access rules. Complex regulation has proven unworkable and has resulted in widespread policy confusion and economic uncertainty. In contrast, less-regulated broadband markets demonstrate that strongly competitive networks can emerge without network-sharing mandates.

*

The Telecommunications Act of 1996 represented an ambitious attempt to redirect public policy by phasing out regulated monopolies in favor of competition. Policymakers advanced several methods to open markets, including: (1) the abolition of state franchise monopolies; (2) a mandate that telecommunication networks interconnect; and (3) rules enabling telecom entrants to share the networks of incumbents that include both a resale program allowing competitors to buy service at regulated wholesale rates and an unbundling program to make pieces of existing telecom networks—such as local loop connections or switches—available to entrants at regulated wholesale rates. We briefly explain the successful implementation of the first two measures and then discuss the severe problems that have developed with the third.

ABOLITION OF STATE FRANCHISE MONOPOLIES

Before 1996, most states had telecommunications franchise monopolies that restricted local telephone service to one supplier per market. Federal abolition of these monopolies preempted state control and established a national regulatory framework to reverse policies that supported entrenched monopolies. The ability of competitive local exchange carriers (CLECs) to attract capital and offer service in every state following passage of the Telecommunications Act demonstrated the success of this effort to reduce barriers to market entry. By the FCC's count, over 500 CLECs entered the market as of October 2003. See Table II-A. Many of these new companies have now exited the market. Their failures have several causes, including volatile financial markets, competitive pressures, ill-conceived business models, and regulatory arbitrage under

price regulation, but the dynamics of the market indicate that policymakers succeeded in eliminating franchise barriers to entry.

Table II-A. Number of Competitive Local Exchange Carriers: 1993–2003

Year	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
CAPs & CLECs	20	30	57	94	129	212	298	479	511	542	563

Notes & Source: CAP = competitive access provider, the name for CLECs before the Telecommunications Act of 1996. Numbers represent CLECs that filed Form 499 (TRS and USF worksheets before 1999). The number of CLECs in 2003 is as of October 22, 2003. Data were obtained from Federal Communications Commission, Wireline Competition Bureau, Industry Analysis and Technology Division, *Trends in Telephone Service* (May 2004), at 5-5 and 8-9.

Eliminating state franchise monopolies not only allowed *de novo* entry but permitted incumbent cable television systems to offer voice service. Several cable operators, most notably Cox Communications, have elected to offer dialtone connections to millions of households. Table I-A shows that by the first quarter of 2004, about 15 percent of total U.S. homes could choose between the cable company and an incumbent telephone carrier when purchasing traditional telephone service. Table II-B, using a different data source, shows a slightly different result.²⁹

The competition between cable and telephone companies appears to be intensifying. Internet phone service that tends to be of high quality, competing most directly with the service of established telephone companies, costs the most. Other providers, with slightly less reliable service, already offer VoIP subscriptions that, for just \$15 to \$30 per month, turn any broadband connection into a telephone. About 600,000 U.S. households now subscribe to such service.³⁰ Leading providers include the major cable operators, Vonage (with about 200,000 subscribers), and AT&T (which claims it will have 1 million VoIP customers by 2005).³¹ As shown in Table II-C, major operator's VoIP deployments are expected to reach over 51 million homes by 2006.

VoIP customers pay monthly broadband subscription charges in addition to VoIP charges, which typically include unlimited domestic calling. Either digital subscriber line (DSL) or cable modem service is now available to approximately nine homes in ten. This means that most residential customers can bypass the incumbent phone carrier's plain old telephone service (POTS) connection for voice, which (with long-distance charges) averages between \$30 and \$50, by paying \$45 to \$80 monthly for a package that includes high-speed Internet access and unlimited domestic long-distance calling.

²⁹ The calculation in Table I-A, based on data from the Leichtman Research Group, is slightly above that estimated by Kagan World Media, reported in Table II-B. The Kagan data indicate slightly more cable telephony subscribers, but somewhat fewer homes passed, than do the Leichtman data.

³⁰ Ben Charny, *AT&T Slashes Net-Phoning Prices*, CNET NEWS.COM (June 15, 2004); <http://news.com.com/2100-7352-5235242.html>. Note that many more households use software that enables computer-to-computer calls at no additional cost to the broadband subscriber. These voice calls are subject to the traffic delays common to Internet transmissions.

³¹ Ben Charny, *The Price of VoIP's Thriftiness*, CNET NEWS.COM (July 19, 2004); <http://news.com.com/2100-7352-5273275.html>.

Table II-B. Cable Telephony: 2003

Circuit-Switched	
Homes Passed (mil.)	14.0
Subscribers (mil.)	2.64
Penetration	18.8%
VoIP	
Homes Passed (mil.)	2.6
Subscribers (mil.)	0.07
Penetration	2.5%
Total	
Homes Passed (mil.)	16.6
Subscribers (mil.)	2.71
Penetration	16.2%

Source: Kagan World Media, *Future of Cable Telephony* (Oct. 2003), at 5.

Table II-C. Major Cable Operator VoIP Deployments

Company	Homes Passed by 2006
Comcast	40,000,000 ¹
Time Warner	11,000,000 ²
Charter	625,000 ³
Total	51,625,000

Notes & Sources:

¹ By 2006.

² 50% of total subscribers in 2004, and the rest in 2005.

³ 125,000 homes passed so far, and 500,000 to 600,000 more in 2005.

Comcast to offer VoIP to 40 Million by 2006, REUTERS (May 27, 2004); <http://smh.com.au/articles/2004/05/27/108546186812.html>. Alan Breznick, *More Major MSOs Unveil VoIP Rollout Plans: Charter, Rogers, Mediacom & RCN All Target Major Service Launches*, CABLE DATACOM NEWS (Mar. 1, 2004); http://www.getvanage.net/corporate/press_news.php?PR=2004_03_01_4.

INTERCONNECTION OF RIVAL NETWORKS

The Telecommunications Act of 1996 also mandated that new telecom networks had the right to interconnect with existing networks. Policymakers designed this provision to encourage start-up companies to invest in new facilities, as their customers would capture network benefits via links to other systems.

History provides an illustrative example of the importance of interconnection. When AT&T established the nation's only long-distance service early in the twentieth century, the firm denied competitors access. Customers of rival local phone companies could not obtain long-distance service without subscribing to a Bell System company, because parent company AT&T controlled the patents on switches that made long-distance calls possible. Many of AT&T's rivals failed or were bought out, and emerging

competitive forces were nipped in the bud, as the industry consolidated in the form of a local and long-distance service AT&T monopoly.³²

In 1962, Microwave Communications, Inc. (MCI) filed an application with the FCC to provide private communications services³³ between St. Louis and Chicago, without interconnecting with AT&T's network. AT&T, Western Union, and some other carriers along the proposed route opposed MCI's application and succeeded in delaying action for several years. Finally, the FCC approved MCI's request to compete in 1969, conditioned on MCI's offering only private, nonswitched services.³⁴ In 1971, the commission generally approved entry into private network services, such as the rights granted MCI. The FCC required AT&T's network to interconnect with the new carriers.³⁵ The next few years saw conflicts over various aspects of this policy, but in 1975 MCI began offering service to the general public, and the era of long-distance telephone competition had begun.³⁶

Interconnection also enabled competition to flourish in wireless telephony. The original cellular licenses, issued in 1984–1989, were distributed to two firms in each local market—one to a company that also provided wireline service and the other to a nonwireline operator. Interconnection to the first firm's wireline system was critical for the firm with no wireline network, whose efforts to attract subscribers would be severely constrained were they unable to connect efficiently to the local fixed-line network—whose owner had financial incentives to avoid providing such connections.

FCC interconnection mandates (enacted before the 1996 act)³⁷ demonstrated that vibrant wireless competition was viable under this market structure. Companies such as AT&T Wireless, Sprint PCS, Verizon Wireless, and Cingular emerged as vigorous competitors—to each other *and* to their parent companies, AT&T, SBC, Sprint, Verizon, and BellSouth. As a leading telecommunications law treatise summarizes:

A simple fact is now clear: competition flourishes wherever competitors are assured the same rights of carriage as any other plain old customer. Competition used to be officially impossible in markets for phones, faxes,

³² Other factors were involved in industry monopolization, including various predatory tactics and state franchise barriers.

³³ Private communications involve those within offices of a given company or agency, not accessing the public switched telephone network.

³⁴ PAUL W. MACAVOY, *THE FAILURE OF ANTITRUST AND REGULATION TO ESTABLISH COMPETITION IN LONG-DISTANCE TELEPHONE SERVICES* (MIT Press, 1996), at 12; GERALD W. BROCK, *TELECOMMUNICATION POLICY FOR THE INFORMATION AGE: FROM MONOPOLY TO COMPETITION* (Harvard Univ. Press, 1994), at 114.

³⁵ PAUL W. MACAVOY, *THE FAILURE OF ANTITRUST AND REGULATION TO ESTABLISH COMPETITION IN LONG-DISTANCE TELEPHONE SERVICES* (MIT Press, 1996), at 13; GERALD W. BROCK, *TELECOMMUNICATION POLICY FOR THE INFORMATION AGE: FROM MONOPOLY TO COMPETITION* (Harvard Univ. Press, 1994), at 126.

³⁶ GERALD W. BROCK, *TELECOMMUNICATION POLICY FOR THE INFORMATION AGE: FROM MONOPOLY TO COMPETITION* (Harvard Univ. Press, 1994), at 130–35.

³⁷ PETER W. HUBER, MICHAEL K. KELLOGG, AND JOHN THORNE, *FEDERAL TELECOMMUNICATIONS LAW* (Aspen L. and Bus., 1999), at 406–12.

and private switches, as it was in markets for long-distance and for wireless telephony. As soon as competitors won rights to interconnect with landline networks, competition thrived. All the theories about natural monopoly and the inherent efficiencies of exclusive franchises collapse when common carrier rules guarantee carrier-to-carrier interconnection.³⁸

NETWORK-SHARING REGULATIONS

In contrast to interconnection mandates and the elimination of franchise barriers, network-sharing mandates have been far more problematic to devise and implement. Three basic concepts follow from the Telecommunications Act of 1996: total service resale, unbundling policy for network elements, and the pricing of unbundled network elements.

Total Service Resale

Incumbent networks offer their voice service at wholesale prices to competitors, who then retail the service to final customers. To establish TSR wholesale prices, state regulators use existing retail rates (regulated by state commissions) as a baseline and then deduct the costs avoided by the incumbent network when a competitor enlists retail customers. Discount margins (the regulated retail price minus the regulated wholesale price) have been set at 15 to 25 percent.

Unbundling Policy for Network Elements

This determines which parts of the incumbent's network rivals may rent separately at regulated wholesale rates. Each part is called an unbundled network element. The local loop connecting a home user to the local phone company's central office would be an example of a UNE, as would the telephone switch redirecting the user's voice traffic in the central office. The FCC has identified about nine such elements, depending on circumstances.³⁹ Under the 1996 act, CLECs should have access to a UNE whenever lack of access would "impair" competitive entry.⁴⁰ Under FCC rules, CLECs can use all parts of the ILEC's network and resell them as a package, an outcome called UNE-platform. This has become the leading resale mode, exceeding TSR lines since 2001, because UNE prices typically fall far below TSR rates.

³⁸ *Id.* at 536–37.

³⁹ Unbundled network elements include local loops, subloops, network interface devices, circuit switching, packet switching, dedicated transport, shared transport, signaling networks and call-related databases, and operations support systems. *U.S. Telecom Ass'n v. FCC*, 290 F.3d 415 (D.C. Cir. 2002), at 4–5.

⁴⁰ Telecommunications Act of 1996 § 251(d)(2)(b) (Jan. 3, 1996). Jerry Hausman and J. Gregory Sidak, *A Consumer-Welfare Approach to the Mandatory Unbundling of Telecommunications Networks*, 109 YALE L.J. (Nov. 24, 1999).

Pricing of Unbundled Network Elements

Under the Telecommunications Act, government regulation is a fall-back when incumbents and entrants fail to negotiate network-sharing arrangements, but, in practice, federal and state rules have displaced private bargaining. The FCC has established the framework under which wholesale terms and conditions are set, while state regulators then fix actual rates. The pricing of UNEs differs markedly from the “avoided cost” methodology used to set TSR rates. UNE prices mimic the costs that would face an ideally efficient firm—the “efficient-firm cost standard”⁴¹—building a new network deploying state-of-the-art technology. The model seeks to identify total long-run incremental cost. As technology improves productivity, TELRIC prices fall over time and put wholesale prices below those actually incurred by existing networks, which use irreversible investments made in the past.

With interconnection, networks trade traffic. This means that upstart operators can arise to challenge dominant suppliers because customers of the former can link to users or network services of the latter. Network sharing, however, requires incumbents and entrants to use the same physical network to offer service to customers. These arrangements appear to work in some cases. For example, national wireless providers such as Virgin and TracFone have attracted millions of subscribers without owning the base stations (or mobile phone licenses) necessary to provide wireless service.

The mobile phone resale model is premised on an agreement between competing parties—what has been called doing business with the enemy.⁴² These conflict-management devices spell out the responsibilities of the parties, impose long-term obligations, and often distribute equity shares to promote cooperation. For example, Sprint PCS reached an agreement with Virgin to let the latter use its facilities for nationwide (U.S.) resale service and acquired 50 percent ownership of the joint venture created.⁴³ These terms deal with traditional economic organization problems involving shirking and opportunism. Such problems are particularly severe when one party sinks capital in long-lasting, irreversible assets but depends on the performance of partners to achieve profits.

When rival firms share fixed assets, differences in the parties’ interests cause difficulties, even when the firms craft a mutually beneficial contract. For instance, Comcast (the largest U.S. cable operator) recently announced that it was ending its build out of standard (circuit-switched) telephone service, in favor of VoIP, in part because Comcast does not want to rely on the AT&T switches it leases to route its phone traffic.⁴⁴

⁴¹ Dennis L. Weisman, *Did the High Court Reach an Economic Low in Verizon v. FCC?* 1 REV. NETWORK ECON. 90 (Sept. 2002), at 94–96.

⁴² Robin Duke-Woolley, *MVNO: Doing Business with the Enemy?* E-PRINCIPLES.COM (June 2001).

⁴³ *Sprint and Virgin Announce Joint Venture*, MOBILEINFO.COM NEWS (Oct. 2001); http://www.mobileinfo.com/news_2001/issue42/sprint_virgin.htm. “Under the agreement, Sprint PCS and Virgin will have an equal share and mutual governance of Virgin Mobile USA.”

⁴⁴ “Comcast will not actively attempt to grow its circuit-switched subscriber base, primarily because the financial benefit of doing so is minimal. ‘That’s because Comcast still leases switches from AT&T in its constant bit rate phone markets. The arrangement with AT&T is not exactly what we would like.

The situation is predictably much worse when regulation, rather than mutual interest, brings the parties together.

Under FCC network-sharing rules, instead of being motivated by contract terms that encourage mutually reinforcing behavior, both the host network and the reseller have strong incentives to increase their profits at the expense of their “partners.” That happens because outside parties, rather than the firms themselves, arrange the transaction. Theoretically, the regulator could devise rules initially pleasing both the incumbent and the entrant, but the parties would still have strong incentives to lobby for more favorable terms, to be awarded at the expense of the losing party. The normal market incentives for cooperation disappear because “contract” terms between incumbent and the reseller are involuntary.

AN EIGHT-YEAR BATTLE OVER NETWORK-SHARING RULES

The wars over network-sharing rules required by the Telecommunications Act of 1996 have produced no clear answers to myriad questions about the use of incumbents’ networks. Market rivalry has given way to a telecommunications sector “war of the roses.” As University of Chicago law professor Richard Epstein concludes, “forced marriages based on accidental happenstance have little chance of success.”⁴⁵ Epstein emphasizes the degree of difficulty by reference to common-law rules that try to avoid the complexity that mandatory network sharing creates:

As is well understood by the drafters of the 1996 Act, telecommunications is the quintessential network industry so that competition between firms cannot take place without some measure of cooperation, which in turn requires some measure of government regulation. The only question worth asking is which form of regulation minimizes distortions attributable to private opportunism and government overreaching. Here the nub of the difficulty rests in the decision to require the forced sale of UNEs and, by administrative interpretation, UNE-Platforms.⁴⁶

The current status of the law is that, in rough terms, CLECs arguing for favorable wholesale terms have won on the issue of pricing (the key decision rendered in May 2002, when the U.S. Supreme Court refused to overturn the use of TELRIC rates),⁴⁷ while ILECs have emerged victorious on UNEs. The latter became apparent after a March 2004 decision by the U.S. Court of Appeals for the D.C. Circuit, characterized by the *Wall Street Journal* as “strike three at the FCC,”⁴⁸ that found the FCC’s unbundling

We think we could do better (financially) by controlling our own technology,’ [Comcast Senior Vice President Rian] Wren said.” Jeff Baumgartner, *Comcast to Stay on the Offensive, Armed with Upgrades and New Services*, CED BROADBAND (July 1, 2004).

⁴⁵ Richard A. Epstein, *Takings, Commons, and Associations: Why the Telecommunications Act of 1996 Misfired*, Manhattan Institute for Policy Research conference, Tragedy of the Telecommons (May 17, 2004), at 24; http://www.manhattan-institute.org/pdf/cde5-17-04_epstein.pdf.

⁴⁶ *Id.* at 11.

⁴⁷ *Verizon Communications v. FCC*, 122 S.Ct. 1646 (2002).

⁴⁸ *Strike Three at the FCC*, WALL ST. J. (Mar. 4, 2004), at 1.

rules illegal because they make network-sharing rules excessively expansive. By overextending sharing opportunities, regulators promoted resale competition at the expense of facilities-based entry. Because the Telecommunications Act explicitly aimed to create new networks, the court held that policies undercutting this goal violate the law:

After all, the purpose of the Act is not to provide the widest possible unbundling, or to guarantee competitors access to ILEC network elements at the lowest price that government may lawfully mandate. Rather, its purpose is to stimulate competition—preferably genuine, facilities-based competition.⁴⁹

The ruling, uncontested by the FCC or the Department of Justice,⁵⁰ effectively eliminated UNE rules as of June 15, 2004. Regulators are now trying to establish new policies to replace them. Hence, while a legal pricing methodology exists for wholesale access to incumbents' networks, no legal framework exists for determining to what those prices apply. One can fairly say that, after nearly a decade of rulemakings, a stalemate exists such that policymakers have yet to define network-sharing regulations.

POLICY FAILURE

This problem is sufficiently fundamental that Gerald R. Faulhaber, a former chief economist at the FCC, analyzed it in an article published in 2003. Evaluating situations in which “policy-induced competition” in telecommunications has succeeded, and those in which it has failed,⁵¹ he finds that policy-induced network competition may occur when one of two conditions is satisfied:

1. Network-sharing policies are relatively uncomplicated because they police a frontier whose use is simple to define in company-neutral terms; or
2. Incumbent networks, saddled with line-of-business restrictions, are prohibited from operating in certain markets.

He notes that the equipment market (manufacturing telephones, switches, etc.) was opened to competition in the 1970s, even as AT&T continued to enjoy substantial monopoly power over local and long-distance phone service, because a modular interface allowing non-AT&T devices to plug into the network was easy to devise. Alternatively, competitive entry occurred in long-distance markets in the 1980s when the Bell System was divided such that “Baby Bells” that remained local monopolies did not provide long-distance services, which used local facilities to connect to end-users.

⁴⁹ *U.S. Telecom Ass’n v. FCC*, 359 F.3d 554 (D.C. Cir. 2004).

⁵⁰ Stephen Labaton, *In Pivotal Case, Bush Backs Off Rule That Eased Phone Line Fees*, N.Y. TIMES (June 10, 2004).

⁵¹ Gerald R. Faulhaber, *Policy-Induced Competition: The Telecommunications Experiments*, 15 INFO. ECON. & POL’Y 73 (2003).

With mandates that CLECs share ILEC facilities, the Faulhaber framework predicts failure. The regulatory goal is overly ambitious, because it requires imposing an entirely new business model on massive infrastructure created to provide service in a far different manner. This means that artificial lines must be drawn to split up assets so as to satisfy regulatory goals rather than to produce market efficiencies. Faulhaber writes:

In brief, Congress and the FCC acted to insert a market boundary deep within the RBOC [regional Bell operating company] local exchange networks, at the heart of their operations. This market boundary involved extremely rich information flows across it, resulting in high transaction costs. In order to ensure equality of treatment of CLECs, a highly detailed regulatory scheme has flourished, complete with extensive reporting and monitoring requirements. As with all regulatory schemes, this also facilitates extensive complaint procedures and appeals as market participants tested the FCC and the courts' willingness to enforce the new regulations. It is the complexity of the market boundary which forces a complex regulatory regime to manage that market, and uncertainty and vagueness that encourages the legal and political gaming that results in very high political transactions costs. Thus, I hypothesize that the lack of a clean, simple market boundary ... is a significant factor in the relative lack of success of this attempt to introduce competition into local exchange.⁵²

Faulhaber considers two solutions to this problem. The first would require that ILECs be prohibited from providing local retail services. The second would replace network-sharing rules with policies to encourage intermodal competition by rival networks, most important cable television companies and wireless telephone operators. He strongly favors the latter solution, because, as noted above, he considers unbundling of network elements unlikely to spur competition in the local loop, even with full divestiture. Rival networks, he argues, are already displacing local dialtone service provided by ILECs by changing the way markets are organized—they are “category killers.”⁵³

PROPERTY RIGHTS AND INVESTMENT INCENTIVES

Regulatory uncertainty pursuant to the Telecommunications Act of 1996 has increased the risk associated with investments in telecommunications networks. Yet, even if network-sharing rules were stable, they would offer sharp investment disincentives. This is so because the rules price access to the incumbent's network to match the best deal that any actual network could achieve. The U.S. Court of Appeals for the D.C. Circuit explains this point in a recent decision:

⁵² *Id.* at 86.

⁵³ *Id.* at 94–95. Faulhaber offers several important policy reforms for promoting intermodal competition. We discuss these measures in Section V after reviewing alternative delivery platforms in Section IV.

The statute says that the ILECs may charge a “just and reasonable rate” for these unbundled network elements (“UNEs”), and the Commission adopted as its standard “total element long-run incremental cost,” or “TELRIC.” Under this criterion UNE prices are to be “based on the use of the most efficient telecommunications technology currently available and the lowest cost network configuration, given the existing location of the incumbent LEC’s [local exchange carrier’s] wire centers.” In litigation over this pricing rule, which the Supreme Court upheld in *Verizon Communications v. FCC*, it appears to have been common ground that, because of ongoing technological improvement (among other things), prices so determined would fall well below the costs the ILECs had actually historically incurred in constructing the elements. Certainly the ardent preferences of the parties as to the scope of the Act’s unbundling requirements—the ILECs seeking a narrow reading, the CLECs seeking a broad one—suggest such a relationship.⁵⁴

The anticipation that prices paid for wholesale access will not fully remunerate investors deters infrastructure investment in incumbents’ networks.⁵⁵ Similarly, entrants are deterred from constructing competing networks both because their investors would be undercompensated (as consumers shop for the low prices regulators make possible via resale of the incumbent’s system) and because they, having yet to sink capital in infrastructure, can themselves take advantage of the discount infrastructure leasing program sponsored by regulators. These disincentives undermine the stated goal of the Telecommunications Act to promote the creation of competing networks.

Supporters of network sharing argue that other incentives offset reasons for not investing in infrastructure. Network-sharing rules may benefit entrants by offering economies of scale in infrastructure deployment (from not having to build a network, but using just part of existing facilities shared with others) and marketing (where regional or national advertising campaigns can be used, service territories extending widely—using resale—even with start-ups). According to this view, once a substantial customer base is established, the entrant will naturally want to develop its own infrastructure for strategic reasons and will then be better able to raise the capital needed to construct a rival network.

This theory has the incumbent defensively increasing investment, as well. In anticipation of CLECs’ soon launching independent, competitive networks, ILECs will seek to improve their own networks. The expectation is crucial, because the incumbent will not likely create a superior network as a strategic reaction only to share it with rivals. As Faulhaber writes:

The provisions for resale and local loop unbundling in the Telecommunications Act were intended to ... enable new entrants to get a

⁵⁴ *U.S. Telecom Ass’n v. FCC*, 359 F.3d 554 (D.C. Cir. 2004), at 4 (citations omitted).

⁵⁵ See Robert S. Pindyck, *Mandatory Unbundling and Irreversible Investment in Telecom Networks*, NBER WORKING PAPER w10287 (Feb. 2004).

start in the market, followed by a buildout of their own facilities. Resale was a stepping stone to full-blown facilities-based competition.⁵⁶

But in assisting new entrants in what is presumably a difficult task, regulators pursue a delicate balance. If network-sharing rules are overly generous (i.e., UNEs too extensive and wholesale prices too low), new entrants will find that the relative cost of building a network has risen. It is now cheaper to rent than to buy; investment incentives for the CLEC to build a network evaporate. An ILEC's incentives to invest in upgrades are reduced because it is forced to share facilities with rival CLECs. The policy transfers profits from those who invest in expanded network capacity and/or functionality and effectively serves as a tax on capital.

Resale competition may work to lower retail rates, but consumer effects are ambiguous. That is so because the fate of future retail use is largely in the hands of capital markets, where investors decide how much to expend to improve existing networks or to risk building new ones. When retail prices are reduced not because of new efficiencies but via regulation of wholesale prices, the signal sent to investors is to curtail investment in new systems, even when consumer demand is strong. Capital expenditures, including those for maintaining existing facilities, fall.

A simple hypothetical demonstrates the problem. Suppose that UNE-P rates for using the SBC network in San Antonio, Texas, were set at zero. CLECs would presumably rush to offer highly discounted retail services. SBC would invest nothing to maintain the system, and competing networks such as cable telephone systems would deter build out as consumers flocked to the artificially low rates of a rival system.⁵⁷ In short, one cannot evaluate the retail price reductions without reference to investment effects. Moreover, the reduction in network build out (by both incumbents and entrants) is highly inefficient if it results in undersupplying services demanded by consumers.

While the theory that network sharing is a "stepping stone" that spurs the creation of new telephone networks is plausible, the worst outcome for mandatory network-sharing rules would be to establish long-lived resale policies, which deliver neither the social benefits of platform choice, nor additional capacity. Mandatory network sharing ensures that the government, not the market, sends the price signals that guide investors considering whether to put their capital into telecommunications enterprises. Economists Gregory L. Rosston and Roger G. Noll write of the possibility that

when the dust settles, most local access competition will take the form [of] resale of the incumbent's facilities. In this case, consumers are not likely

⁵⁶ Gerald R. Faulhaber, *Policy-Induced Competition: The Telecommunications Experiments*, 15 INFO. ECON. & POL'Y 73 (2003), at 92.

⁵⁷ Were the depreciation of the SBC system in San Antonio to proceed rapidly enough, it might actually accelerate investment in the alternative cable telephone network. This would not be a proconsumer outcome, however, as the new system would simply replace the old one destroyed by regulation. The assumption in the text is that depreciation occurs gradually.

to benefit, and regulation will, if anything, grow as regulators are called upon to resolve disputes between incumbents and resellers.⁵⁸

If regulators could produce an ideally efficient pricing structure, of course, the whole cumbersome structure of UNEs and TELRIC pricing models would be superfluous. Retail price caps would be set to the most efficient level, and competitive entry would be unnecessary. But ideal prices are impossible to determine. And the side on which regulators have erred is clear.

As seen in Figure II-A, UNE-P line growth has been explosive since 1999, when competitive local phone service was largely delivered by TSR or facilities-based lines. Since then, however, UNE rates have generally been lowered (often in conjunction with state regulatory proceedings to consider RBOC entry into long-distance markets),⁵⁹ and UNE-P has become the dominant CLEC service mode. The growth of competitive lines provided by new CLEC networks (“CLEC-owned lines”),⁶⁰ including those provided by cable companies, has stagnated. As of December 2003, UNE-P accounted for about 15 million of the approximately 30 million CLEC lines; UNE-P and TSR collectively accounted for about 20 million.⁶¹

Excluding cable telephone lines, CLEC-owned lines actually *declined* in number from December 2000 through December 2003. This means that not only are noncable CLECs declining to invest in new network facilities, but they experienced a net loss of customers from *existing* facilities during this period of robust UNE-P line growth. Given UNE-P pricing—on average, about a 53.5 percent discount from retail prices⁶²—facilities-based entry stopped. This is inconsistent with the stepping-stone theory, which implies that increases in resold lines will soon generate competitor-owned lines. We observe the reverse.

⁵⁸ Gregory L. Rosston and Roger G. Noll, *The Economics of the Supreme Court’s Decision on Forward-Looking Costs*, 1 REV. NETWORK ECON. 81 (Sept. 2002), at 88–89.

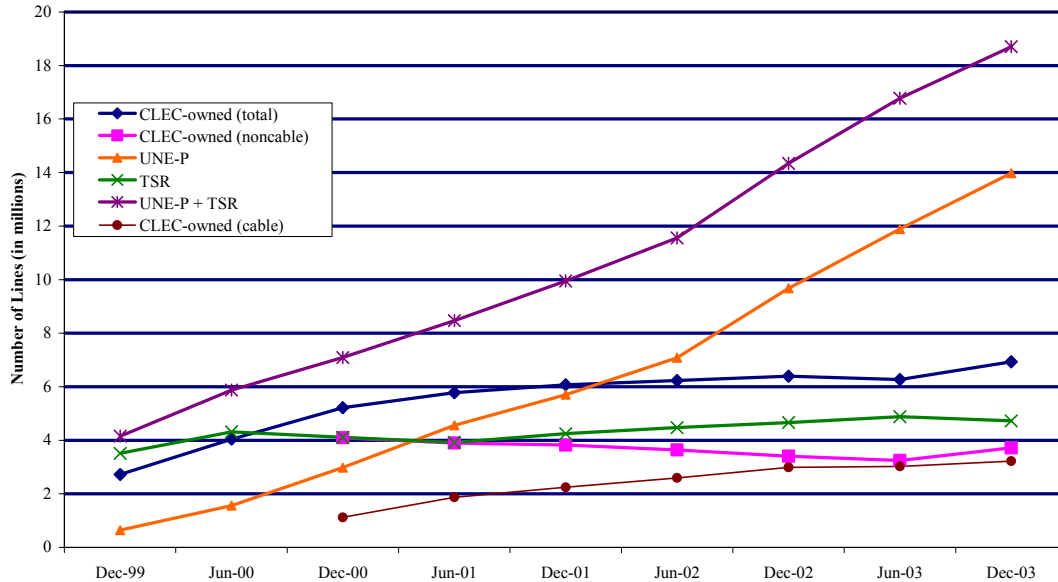
⁵⁹ The Telecommunications Act of 1996 created a fourteen-point checklist with which each RBOC had to comply before it could enter the long-distance telephone market in its local service territories. Pursuant to the requirements in Section 271 of the act, RBOCs then could petition the FCC for authority to offer long-distance service on a state-by-state basis. State commissions and the Justice Department would play a conservative role in the process. On January 2, 1997, Ameritech filed the first petition for Section 271 approval to provide long-distance service in Michigan, and several petitions followed, but the FCC approved no filing until December 22, 1999, when the commission granted Verizon’s New York petition. All state approvals were completed as of December 3, 2003 (when Qwest’s Arizona petition was approved).

⁶⁰ “CLEC-owned lines” may be leased ILEC loops, but they otherwise provide network infrastructure.

⁶¹ Federal Communications Commission, *Federal Communications Commission Data on Local Telephone Competition* (June 18, 2004), at Tables 3 and 4.

⁶² *The Far-Reaching Impact of UNE-P Regulation*, MOODY’S INVESTORS SERV. (Oct. 2003), at 5.

Figure II-A. CLEC Lines by Type: December 1999–December 2003



Notes & Source: CLEC-owned (noncable) = CLEC-owned (total) – CLEC-owned (cable). UNE-P lines = (ILEC UNE-P lines / ILEC total UNEs) X CLEC UNEs. Data are from Federal Communications Commission, Wireline Competition Bureau, Industry Analysis and Competition Division, *Local Telephone Competition: Status as of December 31, 2003* (June 2004), Tables 3–5.

Cable system voice circuits, which operators can create for about \$527 per traditional telephone customer (and less for a VoIP customer),⁶³ are an obvious source of competition. Yet cable telephony build out has been slow, despite the opportunities afforded by existing investments and the emergence of Internet-based voice applications. Analysts have concluded that UNE-P prices have undermined cable company phone investments. For instance, Fulcrum Global Partners recently wrote:

[In] markets where the competition between RBOC and reseller remains especially fierce, it simply may not make sense for a cable company to aggressively rollout a telephony-like offering that has little chance of success If UNE-P based resale discounts were not as staggeringly high as the five Midwestern public utility commissions had mandated them to be, the[n] cable telephony, a far more sustainable form of competition in our opinion, would have at least had a chance of survival in the five-state Midwestern region. Eliminating UNE-P based resale altogether would offer incentives to cable companies to pursue such a customer base without the fear that 50 or more local resellers, with little capital requirements, would flood the market.⁶⁴

⁶³ This assumes 20 percent penetration. Cox Communications, White Paper, *Voice over Internet Protocol: Ready for Prime Time: Cox Communications' Successful Deployment of VoIP* (May 2004), at 11.

⁶⁴ *Wireline Communications: Revising BLS and SBC Estimates Due to AWE Dilution*, FULCRUM GLOBAL PARTNERS (Mar. 10, 2004), at 7.

Regulation should encourage this intermodal rivalry. In fact, the existence of cable's competitive wireline system could create wholesale market opportunities were resale to prove a viable business model. Cable and telephone companies could use the market to determine how to customize network-retailer relations efficiently.

The idea of market cooperation is not mere conjecture. Insight Communications, a cable operator serving about 2 million subscribers primarily in Indiana, Kentucky, and Ohio, leases its local loop facilities to Comcast (which purchased the original contract when it bought AT&T Broadband in 2002). Comcast places its telephone switches in Insight's offices to route voice traffic to the public telephone network. Insight's annual report describes the firms' agreement to split costs and revenues.⁶⁵ Currently, of some 715,000 households passed, about 60,000 receive this phone service.⁶⁶

Market and financial analysts have reached a broad consensus that the resale opportunities now put in place by regulation suppress incumbents' and competitors' investments in network facilities, a conclusion reinforced by telecommunications sector investment trends discussed elsewhere in this report. These analysts believe that wholesale rate regulation directly threatens profitability and offers very little opportunity for entrants. This relates to the nature of reselling when no unique assets are used and when retail-wholesale price margins are closely regulated. The generous "profit opportunity" seemingly awarded new competitors disappears in retail discounts and customer acquisition costs.⁶⁷ Despite serving more than 4 million UNE-P lines, a recent evaluation by Legg Mason considered AT&T's entire retail local residential business essentially worthless. Analysts concluded that "the durability of UNE-P remains relatively immaterial to long-term sector valuations" and singled out both AT&T and Sprint.⁶⁸ A selection of comments illustrating the consensus view by telecommunications analysts appears in Appendix II.

Also informative are the views of telecommunications equipment manufacturers. Companies such as Intel, Nortel, and Cisco sell key network components to a wide array of customers. The firms are indifferent to transfers between telephone companies but desire healthy economic conditions that give investors incentives to build networks and upgrade existing facilities. The manufacturers gain, in particular, with the construction of advanced networks (such as broadband-related markets), which may stimulate the provision of innovative services.

⁶⁵ Insight Communications, SEC Form 10-K, December 31, 2003, at 6.

⁶⁶ A recent transaction, set to close in 2005, assigns the phone business to Insight from Comcast. *Insight Buying Out Comcast in Telephone Partnership*, BUS. FIRST (July 8, 2004); <http://www.bizjournals.com/louisville/stories/2004/07/05/daily22.html>. The multiyear venture speaks to the possibility of an unregulated wholesale access market, while the merger may suggest efficiencies from vertical integration.

⁶⁷ Thomas W. Hazlett and Arthur M. Havenner, *The Arbitrage Mirage: Regulated Access Prices with Free Entry in Local Telecommunications Markets*, 2 REV. NETWORK ECON. 440 (Dec. 2003).

⁶⁸ Legg Mason, *Bush Administration Declines to Back FCC Appeal of D.C. Circuit's Pro-Bell Triennial Review Ruling* (June 9, 2004). AT&T, SEC Form 10-Q, June 30, 2004, at 26 and 28.

These manufacturers have repeatedly argued that compulsory network sharing can be dangerous for investment and should be applied lightly if at all. A good example appears in comments Nortel filed with the FCC in 2002:

Telecom service providers will not invest in infrastructure when regulatory burdens adversely affect the viability of business cases and shareholder return on investment. Without such investment, the equipment suppliers and solutions providers that create innovation will be unable to sustain their research-and-development efforts. The present unbundling and pricing rules result in disincentives to investment on both sides of the issue—for ILECs because they're required to unbundle and for CLECs because they have much to gain by waiting for ILECs to construct facilities instead of building their own.

A Vicious Cycle. Like every other business, carriers need the freedom to earn a market-based return on their investment. Unreasonably low, regulated pricing of network elements by definition prevents a market-based rate of return, inevitably resulting in less infrastructure investment. This, in turn, leads to less spending with technology suppliers, which leads to less money available for technology companies to invest in developing new technology, resulting in a negative impact on innovation. Productivity and the overall economy are adversely affected. This is the vicious cycle we are facing today. This cycle must be interrupted.⁶⁹

THE BROADBAND RACE

The competition between cable modem and digital subscriber line service is an important part of the regulation story, both because this rivalry serves as a test bed for unbundling rules and because broadband services directly compete with telephone service via emerging voice over Internet protocol applications. High-speed Internet connections now provide subscribers with basic phone service and do so at reasonably competitive prices. We discuss the rivalry between broadband and traditional telephony in Section IV. Here we discuss lessons concerning network-sharing rules.

The two principal forms of residential broadband access are subject to two distinct regulatory regimes. Cable modem service uses the cable TV system platform, and the system owner is under no legal obligation to open that facility for use by others. Despite considerable political pressure to impose “open access” rules allowing rival Internet service providers (ISPs) wholesale use of the high-speed last-mile links, cable modems remain unregulated. As proprietary, vertically integrated networks, cable operators determine how to serve customers and can package access to their networks that is based solely on profit considerations.

⁶⁹ Ex parte Comments of Nortel Networks, *In the Matter of Review of Section 251 Unbundling Obligations of Incumbent Local Exchange Carriers*, CC Docket No. 01-338 (Sept. 30, 2002), at 2.

Digital subscriber line service, on the other hand, is delivered over telephone lines—specifically, the twisted copper pairs of the local loop. These connections are UNEs and must be rented to others at prices set by state regulators using FCC guidelines. Until recently, the states were free to set DSL local access rental fees based on the cost of using only part of the local loop, the high-frequency portion that is best used for data. Because this portion can be used when the low-frequency portion is simultaneously delivering telephone calls, incremental costs are very low. But the FCC’s February 2003 decision to end “line sharing” eliminated the option to lease only part of a loop. This decision carried important implications.

The disparate regulatory treatment of broadband platforms is striking: cable is a “closed” platform, while DSL’s telephone company platform is “open.” Rivals have a right to rent incumbent telephone carrier loops at regulated wholesale rates to provide DSL and compete with the telephone company head-to-head for retail customers; those wishing to use cable facilities must negotiate an agreement with the cable operator. The upshot is that mandatory network-sharing rules apply in large part for DSL and not at all for cable modem service.

This suggests an empirical test. Since the rival regimes are in sharp contrast, which one best encourages new investment and product improvements? If mandatory sharing rules achieve their objective of encouraging efficient new entrants, then the “open” platform should outperform the “closed” one. This performance could be measured in price and quality, but quality measurement is difficult, and data are elusive. An alternative test, for which data do exist, uses output as measured by subscribership. Conveniently, this incorporates supplier incentives to deploy service and to offer preferred quality-of-service levels. It assumes that cable modem service and DSL are good substitutes for each other, which seems reasonable.

In the early days of the broadband race, many credible sources predicted DSL as the ultimate winner. These included expert prognosticators who saw the burden of cable modem deployment as the greater handicap, as noted in the following 1997 report from ZDnet:

Cable modems: May want to write the obit on this one. *PC Week* reports vendors are backing away from cable, given competition from digital subscriber line technology and cable’s massive implementation headaches. Hewlett-Packard, IBM and Intel among those reportedly throwing in the towel.⁷⁰

But cable operators soon began investing aggressively to upgrade existing infrastructure and became far more successful in making broadband service available. By the end of 2003, cable modem service was offered to 90 percent of households passed by cable TV lines, while DSL service was available to only 66 percent of households

⁷⁰ Jon C. A. DeKeles, *Don’t Get Robbed on the Road to Faster Access*, ZDNET (May 29, 1997); http://www.zdnet.com/chkpt/adem2fpf/www.anchordesk.com/story/story_931.html.

passed by telephone networks.⁷¹ Cable companies maintain an even healthier advantage in subscribers. As of December 2003, FCC data show 16,446,322 cable modem subscribers, compared with 9,509,442 for DSL.⁷² Thus far, the less-regulated “closed” platform has been far more popular than the more-regulated alternative.⁷³

The trend may be changing, however. A major shift in regulation came in the February 20, 2003, FCC order that altered a network-sharing rule key to DSL provision by entrants. The order stated that “the Commission will no longer require that line-sharing be available as an unbundled element”⁷⁴ and narrowed “open access” requirements to incumbents’ facilities used for DSL. Effectively, the ruling substantially raised access rates for competitors.⁷⁵ After a phase-in period, CLECs seeking to use ILEC loops to deliver DSL would have to pay for the entire circuit as if they were reselling telephone service.

This prompted dire predictions. A *New York Times* headline on February 21, 2003, announced, “High-Speed Service May Cost More.”⁷⁶ Other newspapers reported similar forecasts.⁷⁷ Several scholars agreed. New York University economist Nicholas Economides wrote:

In February 2003, the FCC decided to allow incumbent monopolists of local telecommunications networks to charge any price they want for the portion of the network used to provide DSL service. The immediate consequence will be higher Internet connectivity prices and slower growth of the Internet in the U.S. This is possibly the most damaging decision for the Internet that the FCC could take short of formally imposing regulation on the Internet.⁷⁸

The logic of mandatory network sharing rules implies that short-run prices will rise and penetration growth will fall in the wake of the rule change.⁷⁹ In fact, broadband

⁷¹ Congressional Budget Office, *Does the Residential Broadband Market Need Fixing?* (Dec. 2003), at 21.

⁷² Federal Communications Commission, Industry Analysis and Technology Division, Wireline Competition Bureau, *High-Speed Services for Internet Access: Status as of December 31, 2003* (June 2004), at Table 1.

⁷³ See Thomas W. Hazlett and George Bittlingmayer, *The Political Economy of Cable “Open Access,”* 4 STAN. TECH. L. REV. (2003); http://stlr.stanford.edu/STLR/Articles/03_STLR_4.

⁷⁴ Federal Communications Commission, *FCC Adopts New Rules for Network Unbundling Obligations of Incumbent Local Phone Carriers* (Feb. 20, 2003).

⁷⁵ ALFRED E. KAHN, LESSONS FROM DEREGULATION: TELECOMMUNICATIONS AND AIRLINES AFTER THE CRUNCH (AEI-Brookings Joint Center for Regulatory Studies, 2004), at 43.

⁷⁶ Saul Hansell, *Communications Compromise: Internet Access; High-Speed Service May Cost More*, N.Y. TIMES (Feb. 21, 2003), at C4.

⁷⁷ Jane Black, *A Not-So-Ringing Defeat for the Bells: While the FCC’s Proposed Rules Don’t Give Them Relief on Local Service, They Scored Big-Time on Broadband Deregulation*, BUS. WK. ONLINE (Feb. 21, 2003); Ben Charny, *DSL Customers Brace for Higher Prices*, CNET NEWS.COM (Feb. 21, 2003).

⁷⁸ Nicholas Economides, *Dial “C” for Competition*, STERN BUS. 40 (Fall/Winter 2003), at 43.

⁷⁹ For access regulation to be efficient in this circumstance, it is necessary that it lower prices and increase near-term penetration, even as these outcomes are insufficient to demonstrate a proconsumer

access prices have *fallen* since the FCC decision to end line sharing.⁸⁰ Moreover, retail discounting has occurred simultaneously with acceleration in DSL growth. Telephone companies have cut prices, and this appears to have driven an increase in DSL market share.

Figure II-B displays broadband subscriber data from Legg Mason. After the FCC decision ending line sharing, both cable modem and DSL growth continued. But while DSL growth accelerates above trend (extrapolated via the dashed line), no positive growth “bump” occurs for cable during this period.

Figure II-C displays the ratio of cable modem subscribers to DSL subscribers (also using Legg Mason data). The end of line sharing occurs just as the cable modem-to-DSL ratio reaches a local maximum.⁸¹ This indicates that the trend in the ratio of cable modem to DSL subscribers significantly changed after the Triennial Review Order—in favor of DSL.

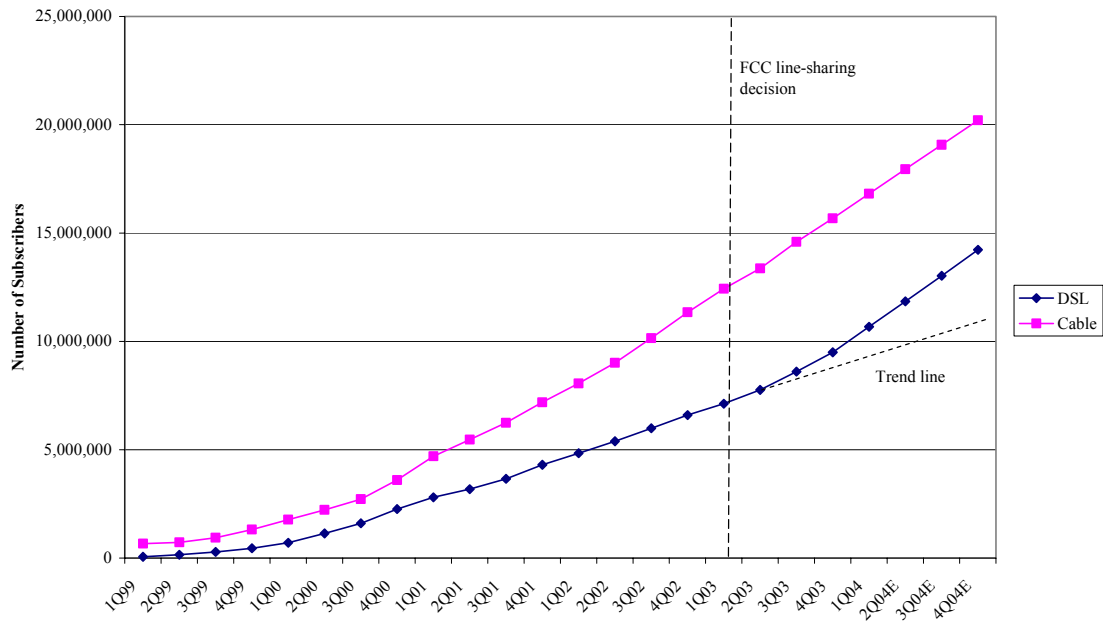
These results are consistent with alternative broadband usage data generated by public surveys conducted by the Pew Internet & American Life Project that indicate that DSL’s growth trend exhibits a sharp increase in the one-year period following the end of line sharing. See Figures II-D and II-E. That consumers appear much more likely to subscribe to DSL, relative to either not subscribing to broadband or subscribing to cable modem service, suggests that the DSL price-quality package increased in value, as judged by consumers, in the wake of changes that reduced DSL regulation. Although other factors may account for observed patterns, the conjecture that access provisions drive broadband competition appears to lack support.

result, which additionally requires that long-term price-quality choices by consumers (which encompass short-run effects) are superior to what they would be in the absence of such rules. Investment choices and other market dynamics enter in the long run.

⁸⁰ *Falling DSL Prices May Herald a Broadband Sea Change*, 13 BROADBAND BUS. REP. (Nov. 4, 2003); Jon Van, *SBC Gains Strong Lead in DSL Race, Aggressive Price-Cutting and Dealmaking Help Telecom Giant Surge Past Other Phone Companies for Broadband Market Share. Still, Cable TV Operators Add Two Customers for Each DSL User*, CHI. TRIB. (Nov. 14, 2003), at 1; Anick Jesdanun, *High-Speed Internet Soaring as Prices Decrease*, ALB. TIMES UNION (Apr. 19, 2004), at A3.

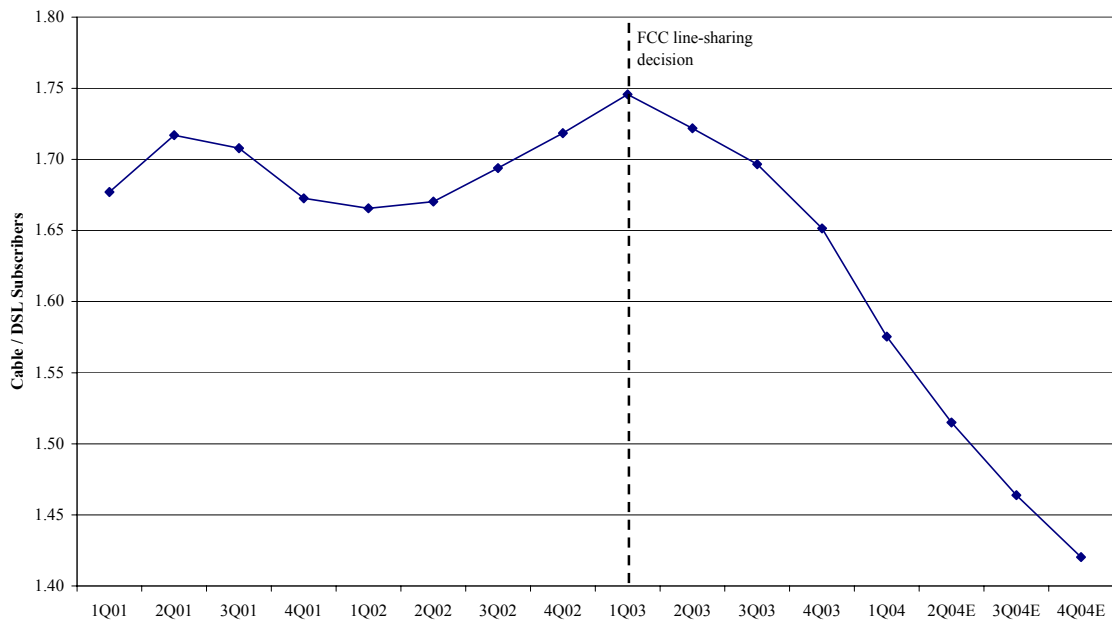
⁸¹ A regression analysis estimates that the ratio of cable modem subscribers to DSL subscribers fell sharply following the decision to end line sharing, with the cable modem-to-DSL ratio dropping a statistically significant 0.29. In addition, we estimated a regression with quarterly data from Legg Mason covering the third quarter of 2000 through the fourth quarter of 2004 by incorporating two lags of the dependent variable and a dummy variable for periods after the February 2003 Triennial Review Order (TRO).

Figure II-B. Quarterly DSL and Cable Subscribers: 1999–2004E



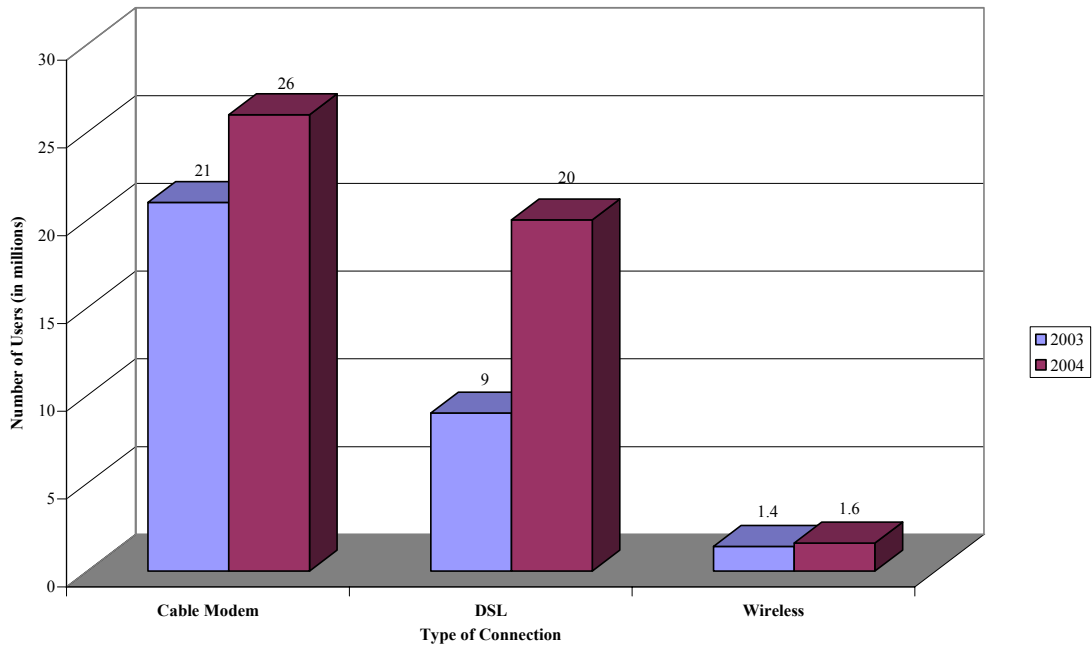
Source: Data were obtained from Legg Mason.

Figure II-C. Ratio of Cable to DSL Subscribers: 2001–2004E



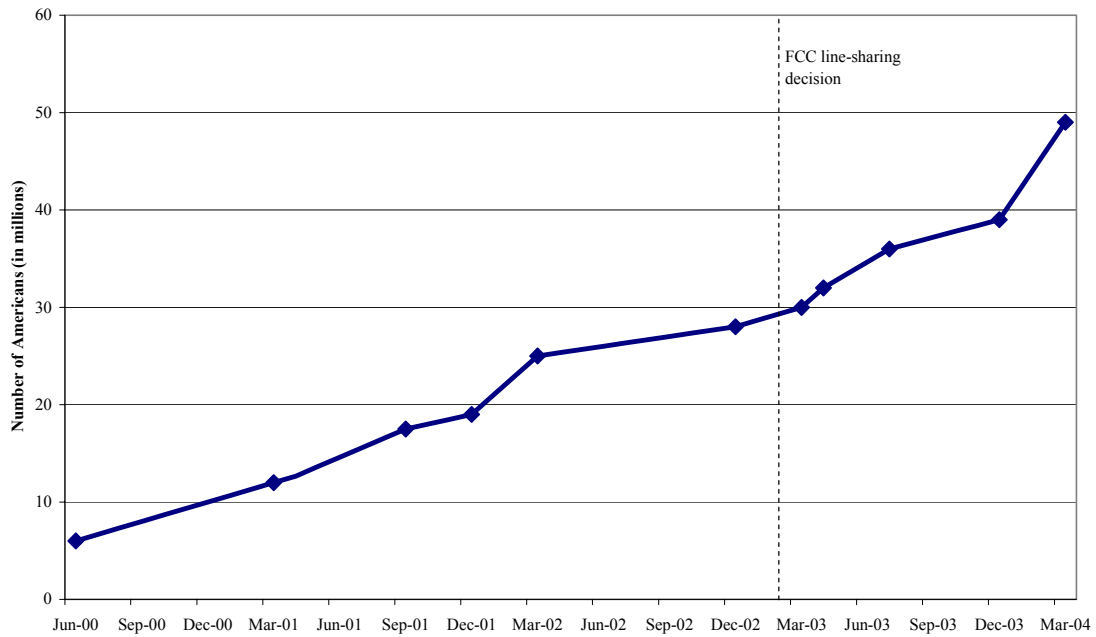
Source: Data were obtained from Legg Mason.

Figure II-D. Composition of Home Broadband Market: 2003 and 2004



Source: John B. Horrigan, *PEW Internet Project Data Memo*, PEW INTERNET AND AMERICAN LIFE PROJECT (Apr. 2004), at 3.

Figure II-E. American Adults with Broadband at Home: June 2000–March 2004



Source: John B. Horrigan, *PEW Internet Project Data Memo*, PEW INTERNET AND AMERICAN LIFE PROJECT (Apr. 2004), at 10.

SUMMARY

The complexity of devising ambitious network-sharing rules to promote last-mile telephone competition has proven more than regulators can handle. Today, the rules are in disarray. The policy failures stand in stark contrast to examples of markets that work. As demonstrated in broadband, head-to-head rivalry outperforms regulation, even with just two principal competitors. Given that a stalemate in the litigation war over unbundling terms is now upon us, alternatives to these controversial provisions must be found. Fortunately, superior procompetition rules are available.

Network-sharing policy should be reformed in two basic ways. First, policymakers should weight the administrative processes, transaction costs, and ripple effects caused by government interventions *ex ante*. Rules that invite contentiousness constitute “attractive nuisances”; litigants cannot be blamed for jamming the system when policies invite arch rivals to try to twist the rules to extract financial benefits. In a study of determinants of regulated telecommunications prices, University of California at Berkeley scholars Rui J. P. de Figueiredo, Jr., and Geoff Edwards find:

[R]egulated prices for access to the local loops of incumbent telephone networks varied from \$2.79 per month in downtown Chicago, IL to \$7.70 in Manhattan, NY to \$12.14 in Houston, TX [W]e find a significant effect of private money on regulatory decisions. A one standard deviation increase in the percentage of contributions in an electoral cycle by entrants to the industry is associated with a fall of around three-tenths of a standard deviation in the regulated local loop price (around \$1.36 per month).⁸²

Policymakers should alter the structure of telecommunications regulation to reduce such influence. This implies lessening the scope, frequency, and economic significance of arbitrary judgments that policymakers render. Ending theoretical pricing rules constituted on the basis of an “ideally efficient competitor,” a standard that may itself serve as a powerful deterrent to new investment by entrants,⁸³ should be an essential part of any reform.

Alternative policies are available to stimulate the creation of rival networks without incurring the collateral damage that today thwarts progress. Competitive networks exist, and additional entrants are on the horizon. The highest priority of regulators should be to create policies to encourage investors to take the risks to develop vigorous competition between communications networks. The success of such a reform effort will redirect

⁸² Rui J.P. de Figueiredo, Jr., and Geoff Edwards, *Why Do Regulatory Outcomes Vary So Much? Economic, Political, and Institutional Determinants of Regulated Prices in the U.S. Telecommunications Industry*, Haas School of Business, University of California (May 2004).

⁸³ “The FCC has decreed that the charges for [unbundled network] elements and the resale discounts must emulate the costs of an ideally efficient firm. This standard is in fact not efficient, and the FCC’s attempt to jump-start the entry of competitors in this way has short-circuited the competitive process itself.” Alfred E. Kahn, Timothy J. Tardiff, and Dennis L. Weisman, *The Telecommunications Act at Three Years: An Economic Evaluation of Its Implementation by the Federal Communications Commission*, 7 INFO. ECON. & POL’Y 319 (1999), at 365.

market forces. Instead of lobbying for more favorable government rules, rivals will compete to offer customers better prices and improved service.

III ECONOMIC COSTS OF THE CURRENT REGULATORY SYSTEM

Information technologies are vital to U.S. economic health. The telecommunications sector has recently suffered a major depression, however. A financial collapse caused far-reaching job reductions in telecom services (21 percent) and equipment manufacturing (39 percent). Market values plummeted, and many firms went bankrupt. This collapse was due both to swings in financial markets and to sector-specific regulation. The Telecommunications Act of 1996 led to new rules that artificially inflated the expected returns of some businesses and depressed the expected returns of others. Investors flocked to the new opportunities, but when sales growth failed to match expectations, capital flows dried up. Lenders and receivers sold equipment at auction, a move that further depressed demand. The constriction of bank lending also affected nontelecommunications companies and thus reduced their demand for telecommunications services and equipment. Despite growth elsewhere, the telecommunications sector remains stagnant as regulations have reduced the return on network investments. The result has been decreased employment, output, and productivity, along with aging infrastructure and decreased innovation, factors that have reduced U.S. global competitiveness.

*

OVERVIEW

The telecommunications sector, like the entire U.S. economy, has been through a recession, but the recent decline in telecommunications equities was particularly severe. Between March 2001 and May 2004, telecom service companies lost 21 percent of their workers, and telecommunications equipment companies lost 39 percent, a total of 380,500 jobs. The sector also lost massive net worth as the capital markets dried up for telecommunications investments.

The interaction of telecommunications regulations and financial market volatility caused the downturn in telecommunications. From 1982 to 2000, the U.S. economy enjoyed a long bull market spurred by a secular decline of interest rates combined with technology-led earnings growth. The Telecommunications Act of 1996 created a new set of rules that artificially inflated the returns of some businesses and depressed the returns of others. Entrepreneurs, eager to take advantage of the new rules, formed a large number of new businesses. Optimistic business plans attracted massive amounts of capital and thus drove up stock price multiples and set the stage for the technology bubble.

When it became clear that actual sales growth would not meet expectations from mid- to late-2000, federal bank regulators pressed banks to reduce lending. Most start-up technology companies had spent the money they raised on operating expenses or nonsalvageable assets; many were pushed into bankruptcy. A tidal wave of telecommunications equipment hit the secondary market as equipment was auctioned by lenders and receivers at about 20¢ per dollar of original cost, a factor that further depressed sales and revenues of telecommunications equipment manufacturers. The constriction of bank lending also affected nontelecommunications companies and dampened prospects for macroeconomic growth.

The overall economy is recovering now, but the telecommunications sector remains depressed. Burdensome regulations have reduced the return on capital below the cost of capital for many of the remaining companies, and policy uncertainty has increased risk for investors; both factors have undermined incentives for capital spending. The result has been decreased growth and fewer jobs. The financial plight of the telecommunications sector has also led to reduced innovation, aging network infrastructure, higher costs for businesses and consumers, less customer choice, and diminished global competitiveness.

ECONOMIC IMPORTANCE OF TELECOMMUNICATIONS

The telecommunications industry serves as the central nervous system of our economy. The health of the U.S. telecommunications network plays an important part in determining both productivity growth and the ability of U.S. businesses to compete in world markets. Although telecommunications output makes up just 2.9 percent of total output,⁸⁴ telecommunications networks constitute essential infrastructure that enables commerce by providing the conduit for information flows among consumers, workers, and businesses.

The telecommunications industry comprises companies that provide local, long-distance, and wireless phone services, cable and satellite TV operators, and Internet access providers, along with the firms that manufacture and service all the equipment, components, and applications that we use to communicate, including both hardware and software. These companies had revenues of \$721 billion in 2003.⁸⁵

Americans spent \$285.3 billion on telecommunications services in 2003.⁸⁶ Real telecommunications expenditures have grown at an average annual rate of 6.3 percent since 1987, far in excess of the annual growth rate of 3.4 percent in total real personal

⁸⁴ R. E. Yuskavage and E. H. Strassner, *Survey of Current Business Gross Domestic Product by Industry for 2002*, Bureau of Economic Analysis (May 2003), at 9, Table C; <http://www.bea.gov/bea/ARTICLES/2003/05May/0503GDPbyIndy.pdf>.

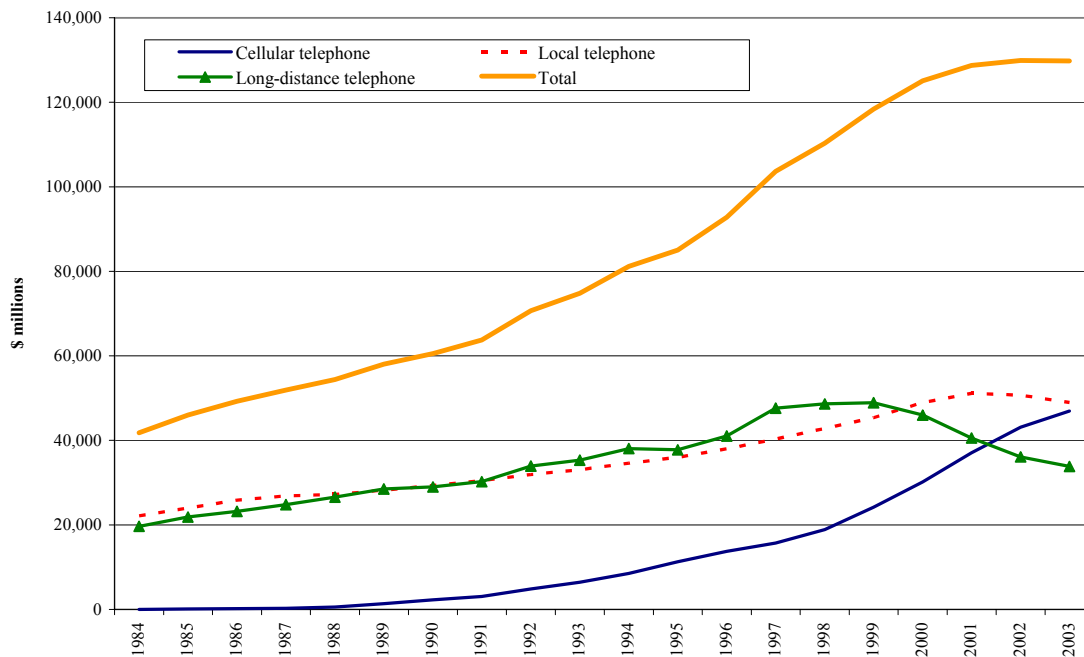
⁸⁵ R. O. King, *Telecom Spending to Increase, Confidence Returning*, WEB HOST INDUS. REV. MAG. (Apr. 14, 2004); <http://thewhir.com/king/telecom-spending.cfm>.

⁸⁶ Telecommunication services include local exchange services, toll service, and wireless services. Telecommunications Industry Association, *TIA's 2004 Telecommunications Market Review and Forecast* (2004), at Table I-1.1.

consumption.⁸⁷ Since 2000, spending on wireline long-distance service has declined, a trend facilitated by falling prices and wireless substitution. Local landline phone revenues have declined, as well, since 2001.

Measured on a quantity basis (units of output rather than dollar value of output), the growth of the communications industry has far outstripped that of the overall economy. Since 1987, the communications industry has increased the quantity of services provided by 150 percent, nearly three times as much as real GDP, which grew by 55 percent between 1987 and 2003.⁸⁸ On this basis, although the dollar cost share of telecommunications has remained almost constant, U.S. industries use about twice the amount of communications services as they did in 1987, because of falling relative prices. See Figure III-A.

Figure III-A. Personal Consumption Expenditures on Telecommunications: 1984–2003



Source: International Telecommunication Union, adapted from national reports.

According to the eighty-seven industry input-output tables published by the Bureau of Economic Analysis, every U.S. industry except owner-occupied dwellings uses telecommunications in the provision of their output.⁸⁹ The largest users of

⁸⁷ Bureau of Economic Analysis, *National Income and Product Accounts of the United States, Real Personal Consumption Expenditures* (Aug. 5, 2004), at Table 2.5.3; <http://www.bea.gov/bea/dn/nipaweb/TableView.asp?SelectedTable=71&FirstYear=2002&LastYear=2003&Freq=Year>.

⁸⁸ Bureau of Economic Analysis, *Survey of Current Business Gross Domestic Product by Industry for 2002* (May 2003), at 9, Table C; <http://www.bea.gov/bea/ARTICLES/2003/05May/0503GDPbyIndy.pdf>.

⁸⁹ Bureau of Economic Analysis, *Input-Output Tables* (1999); http://www.bea.gov/bea/dn2/i-o_annual.htm.

telecommunications services, after communications companies themselves, are companies involved in wholesale trade, finance, retail trade, insurance, other business and professional services, real estate, and legal, engineering, and accounting. See Table III-A.

Table III-A. Largest Users of Telecommunications Services by Industry

User Industry	Telecom's Share of User Industry's Intermediate Input Expenditures
Communications	33.0%
Wholesale Trade	6.2%
Other Business and Professional Services (except Medical)	5.5%
Computer and Data Processing Services	5.4%
Legal, Engineering, and Accounting Services	3.7%
Finance	3.7%
Retail Trade	3.7%
Insurance	3.2%
Health Services	2.6%
Real Estate	2.0%

Source: Bureau of Economic Analysis, *Input-Output Tables* (1999).

The nature of business usage differs significantly among businesses. Financial, wholesale, and retail trade companies have moved most aggressively beyond voice applications into data transmission, where they consolidate and evaluate information from multiple locations and operations. Such applications are also beginning to take hold in the medical and insurance fields, where workers file and process claims electronically.

The best-run wholesalers and retailers use telecommunications intensively to track inventory, measure sales at each location and for each product, and order replacements. America's largest retailer, Wal-Mart, has been called "the most unlikely technology company" because it deals in low-cost consumer products with thin profit margins. But Wal-Mart's use of information technologies has allowed it to achieve the highest return on capital of any company in its industry over the past twenty years. By using the latest communications systems, Wal-Mart is able to turn over its inventory twelve times per year, compared with an industry average of four. So despite its 15 percent markup compared with its competitors' 25 percent, Wal-Mart generates \$1.80 of gross profit per dollar of inventory compared with \$1.00 for its competitors.⁹⁰

EFFECTS OF THE U.S. RECESSION

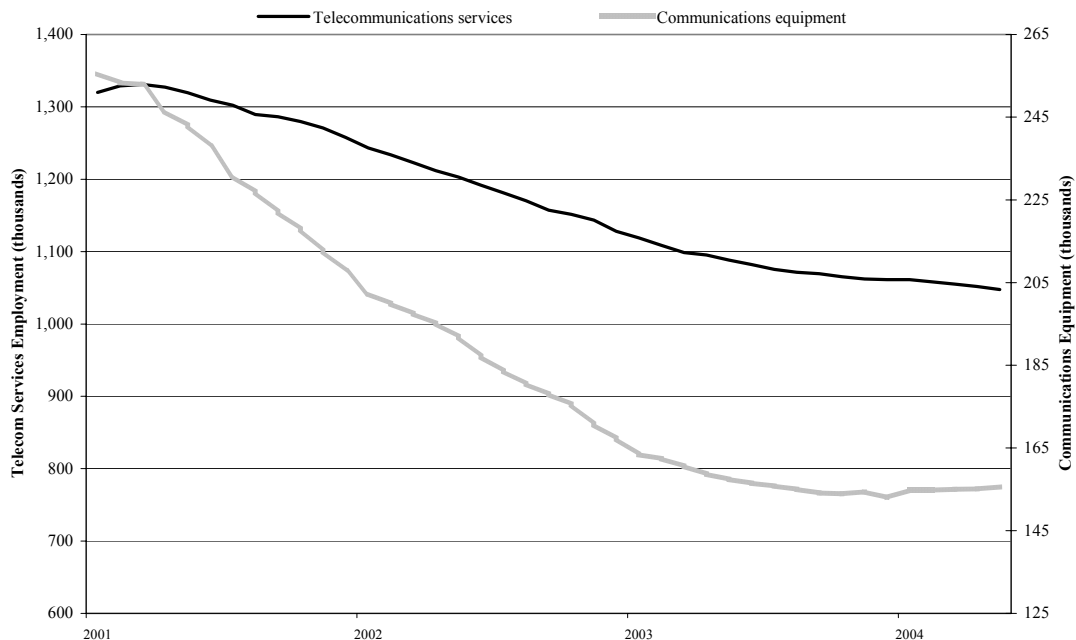
The U.S. recession that began in March 2001 and ended in November 2001 hit the telecommunications industry much harder than other sectors. Although the industry accounted for only 1.2 percent of total nonfarm jobs in the United States in March 2001,

⁹⁰ Richard Young, *The World's Most Unlikely Technology Company*, INTELLIGENCE REP. (1999).

the 100,400 workers in the combined telecommunications services and telecommunications equipment industries who lost their jobs during the eight-month recession made up 6.1 percent of the total job losses during the recession. U.S. total nonfarm employment continued to decline until August 2003, by which time job losses totaled 2,718,000; of those, 13.2 percent, or 357,500 were in the combined telecommunications service and telecommunications equipment sectors.⁹¹

Between March 2001 and August 2003, telecommunications service providers such as Verizon, BellSouth, SBC, Qwest, AT&T, Sprint, and MCI reduced employment by 259,600 workers, a 19.5 percent decrease in workforce, as shown in Figure III-B. Equipment companies such as Lucent, Nortel, and Corning were hit even harder, with employment shrinking by 97,900, a 38.7 percent drop.

Figure III-B. Telecommunications Equipment vs. Services Employment: January 2001–May 2004



Source: Bureau of Labor Statistics, *National Employment, Hours and Earnings*, January 2001 to May 2004 (information sector: telecommunications; manufacturing sector: communications equipment); <http://data.bls.gov/servlet/SurveyOutputServlet>.

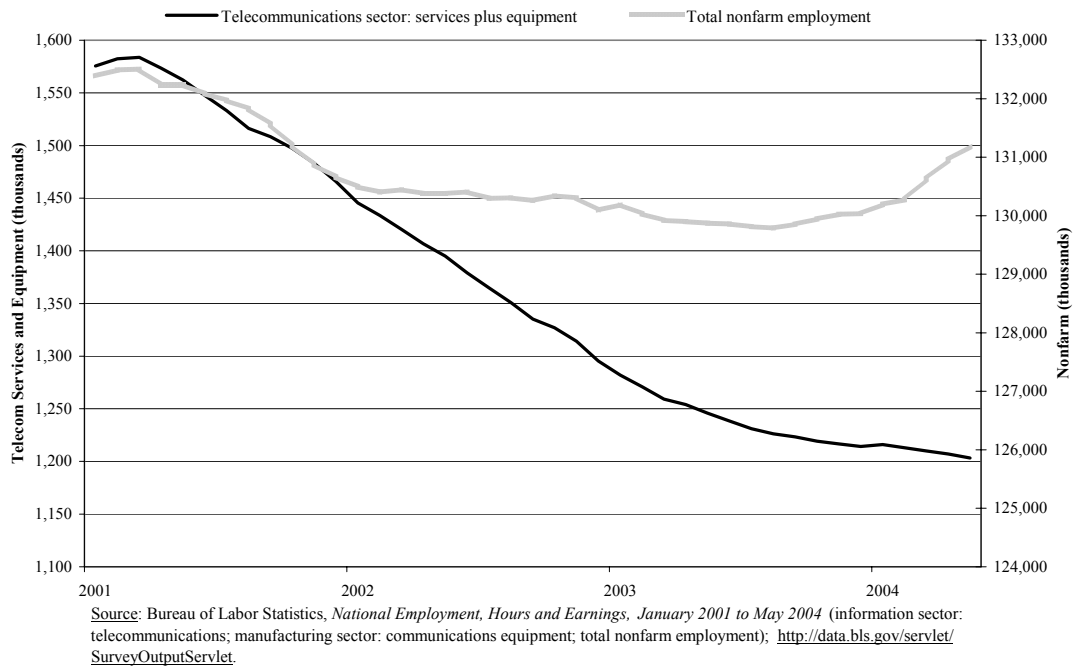
TELECOM SECTOR LAGS ECONOMIC RECOVERY

Today, the U.S. economy is enjoying broad-based growth in jobs and output in virtually every sector *except* telecommunications. Overall employment increased by 1.4 million jobs between August 2003 and May 2004 to reclaim 52 percent of the 2.7 million

⁹¹ Bureau of Labor Statistics, *National Employment, Hours and Earnings*, January 2001 to May 2004 (2004) (information sector: telecommunications; manufacturing sector: communications equipment; total nonfarm employment); <http://data.bls.gov/servlet/SurveyOutputServlet>.

jobs lost from January 2001 to August 2003. As Figure III-C shows, however, combined telecom employment fell by a further 23,000 workers. Overall, combined telecom job losses from March 2001 to May 2004 of 380,500 workers make up 28.9 percent of total U.S. jobs lost over this period.

**Figure III-C. Telecommunications Sector Employment vs. Total Nonfarm Employment:
January 2001–May 2004**



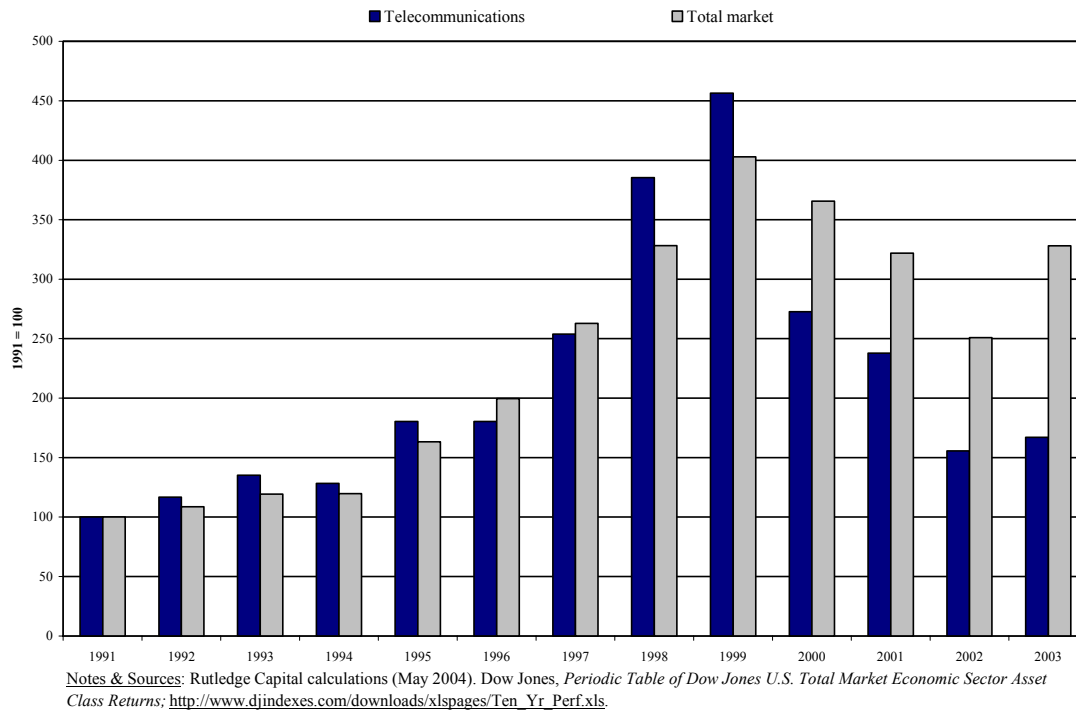
As Figure III-D shows,⁹² the market capitalization of the telecommunications sector has suffered a dramatic decline relative to the overall stock market since the market decline that began in March 2000. In absolute terms, from March 2000 to July 2004, the market capitalization of the telecommunications service industry declined by 67 percent, or \$760 billion, from \$1,135 billion to \$375 billion. During the same time period, the market capitalization of the equipment makers in the communications technology sector declined 74 percent, or \$944 billion, from \$1,282 billion to \$338 billion.⁹³ Competitive local exchange carriers were especially hard hit, with a 97 percent decline in market value, from more than \$100 billion to just \$2.9 billion. After more than

⁹² Rutledge Capital calculations (May 2004). *Aggregate Index Sector Total Returns, 3/2000 to 7/2004*, Dow Jones Indexes (2004); <http://averages.dowjones.com/jsp/uiHistoricalIndexRep.jsp>. *Telecommunications Sector Total Returns 3/2000 to 7/2004*, Dow Jones Indexes (2004); <http://averages.dowjones.com/jsp/uiHistoricalIndexRep.jsp>.

⁹³ *Telecommunications Sector Total Returns 3/2000 to 7/2004*, Dow Jones Indexes (2004); <http://averages.dowjones.com/jsp/uiHistoricalIndexRep.jsp>. *Communications Technology Sector Total Returns, 3/2000 to 7/2004*, Dow Jones Indexes (2004); <http://averages.dowjones.com/jsp/uiHistoricalIndexRep.jsp>.

\$60 billion were spent on new capital between 1996 and 2001, market value in this subsector essentially vanished.⁹⁴

Figure III-D. Index of Market Capitalization of the Telecommunications Sector vs. Total Market: 1991–2003



Annual capital spending in all areas of telecommunications plummeted. From a peak of \$132 billion in 2000, it fell to just \$56 billion in 2003. See Figure III-E. The depressing impact of regulations may have been responsible for more than \$20 billion of this annual reduction in capital spending.⁹⁵

The dramatic drop in capital spending has caused severe economic damage to a number of related industries, including fiber-optic manufacturing. This spending drop has caused the two major producers of fiber for the United States, Corning and Furukawa Electric, to close five of their six plants. Corning reduced head count by close to 21,000 workers, and Furukawa planned to reduce capacity by more than half.⁹⁶ Equipment makers as a group lost 24 percent of their revenues and reduced R&D spending by more than 23 percent.⁹⁷

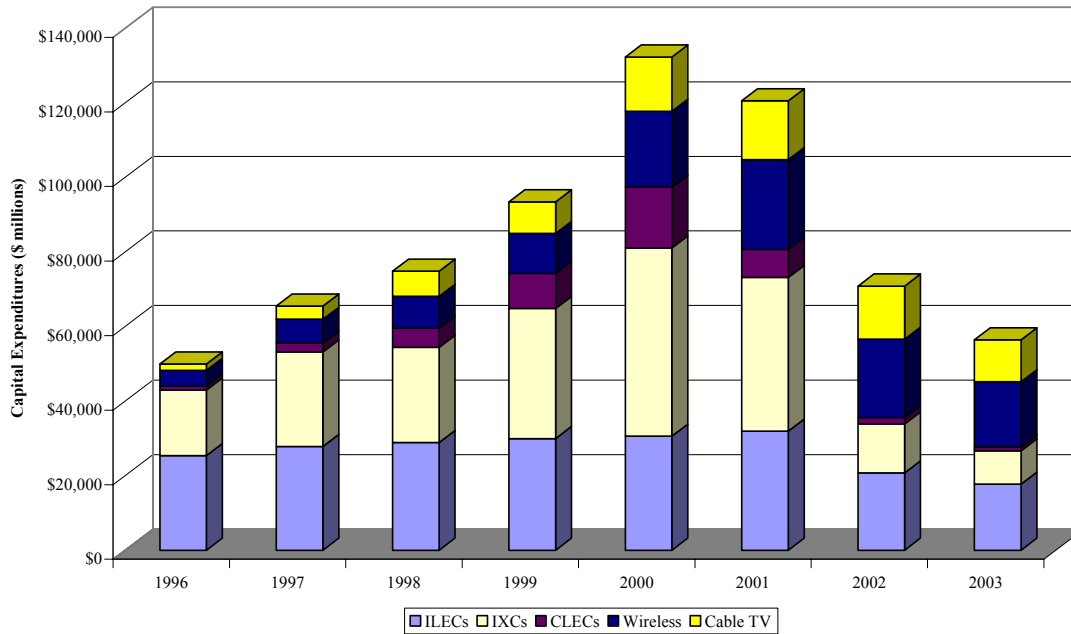
⁹⁴ As cited in Robert W. Crandall, Allan T. Ingraham, and Hal J. Singer, *Do Unbundling Policies Discourage CLEC Facilities-Based Investment?* 4 TOPICS IN ECON. ANALYSIS & POL'Y 1 (2004).

⁹⁵ John Haring and Jeffrey Rohlfs, *The Disincentives for ILEC Broadband Investment Afforded by Unbundling Requirements*, STRATEGIC POL'Y RES. (2002), at 15.

⁹⁶ CORNING, ANNUAL REPORT (2002, 2003); <http://www.shareholder.com/corning/mypage.cfm>. FURUKAWA ELECTRIC, ANNUAL REPORT (2002, 2003); <http://www.furukawa.co.jp/english/ir/financial/annual/index.htm>.

⁹⁷ Rutledge Capital calculations (May 2004). COMPUSTAT Database Research Insight; Standard & Poors CD ROM (Apr. 2004).

Figure III-E. U.S. Telecommunications Service Providers' Capital Expenditures: 1996–2003



Source: T. Rowe Price and Co. reports.

BOOM AND BUST IN TELECOM

The distortions regulations cause do not deserve all the blame for the depressed state of the telecommunications sector. Rather, it was the interaction between telecommunications regulations and the capital markets that led to financial decline. The telecommunications capital market bust since 2000 has had three separate causes. The first was triggered by government rules, pursuant to the Telecommunications Act of 1996, which favored investments in some companies over others. The second cause was the precipitate change in the behavior of bank regulators in late 2000, which resulted in the credit tightening that worsened the recession. The third cause was the sudden shutdown in telecommunications equipment purchases caused by the collapse of prices in the secondary equipment market under the weight of bankruptcy auctions in 2001 and 2002.

Telecommunications Act of 1996

The Telecommunications Act of 1996 led to a new set of rules that inflated expected returns of some businesses, in particular competitive local exchange carriers, and depressed the returns of others, such as the regional Bell operating companies. A vast number of new businesses, eager to take advantage of the artificial disparity in returns, rushed to market with optimistic business plans often showing 20–25 percent sales growth projections. The systematic drying up of future cash-flow streams, which

accompanied the reduction of inflation and nominal GDP growth in the years since 1980, has pushed interest rates down and stock multiples up and has made investment managers extremely sensitive to variations in potential revenue growth and in cost of capital when evaluating investments. Bankers and investors flocked to the opportunities created by the new regulatory structure. The flood of capital that poured in caused price/earnings ratios to soar and set the stage for the technology bubble that followed.

The Effect of Constricting Bank Loans

In the fall of 2000, bank regulators at the Treasury Department saw that sales growth was failing to meet expectations for technology companies.⁹⁸ The regulators dispatched bank field examiners to shut down bank lending to technology companies and to press banks to attempt to recover loans already made. But the loans that had been made to technology companies proved generally unrecoverable. The companies had used the funds to pay current operating expenses or to buy companies at prices greatly in excess of asset value. The only salvageable assets were the routers, servers, and other information technology (IT) equipment they had recently purchased.

As Figure III-F shows, the unsuccessful attempts of commercial banks to recover technology loans had an unintended consequence: they effectively blocked new loans to all business customers. Aggregate business loans declined steadily from a peak of \$1.1 trillion in January 2001 to just \$880.1 billion as of June 1, 2004.⁹⁹ These loans are important to the future growth of the telecommunications industry. Business borrowers are the small companies targeted as potential customers for high-speed services.

The Effects of Secondary Markets

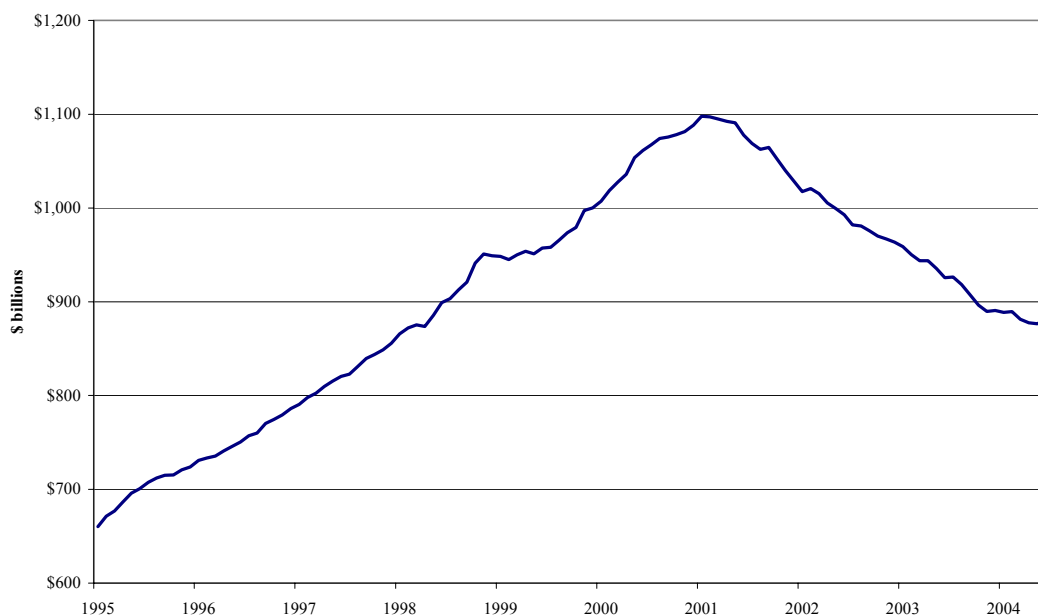
As telecommunications companies were pushed into bankruptcy, their equipment was auctioned to junk dealers—today we refer to the junkyard as the secondary market—for 20¢ per dollar of original cost. *Fortune* described this tidal wave of “unboxed inventory” being sold in bankruptcy auctions for pennies on the dollar of original cost and called it “Cisco’s Worst Nightmare.”¹⁰⁰ Figure III-G reproduces estimates of 2002 IT equipment sales as published in the February 4, 2002, article. The secondary market buyers, in turn, sold the product to business customers who would otherwise buy from original equipment makers such as IBM, Cisco, Nortel, Lucent, and Sun at retail prices.

⁹⁸ John Rutledge, *Credit Crunch Imperils the Economy*, WALL ST. J. (Nov. 6, 2001).

⁹⁹ Federal Reserve Bank of St. Louis, *Economic Research—FRED II/Banking/Loans* (2004); <http://research.stlouisfed.org/fred2/series/BUSLOANS/10yrs>.

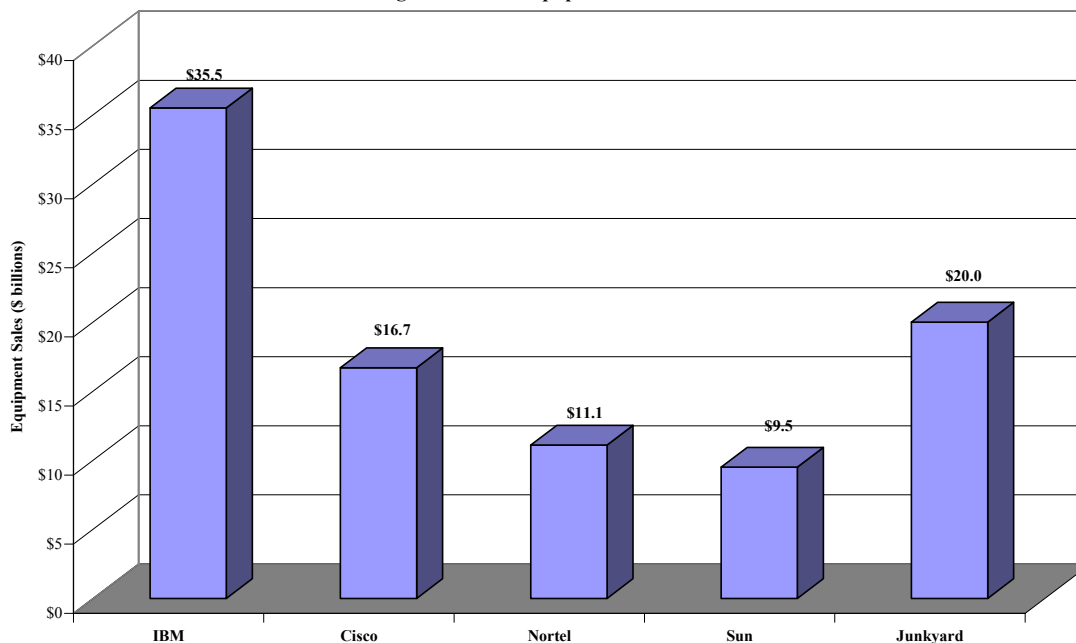
¹⁰⁰ J. Creswell, *Cisco’s Worst Nightmare (and Sun’s and IBM’s and Nortel’s and ...)*: *Tech’s Big Guns Are Waging War with a New Foe: Used-Equipment Sellers*, FORTUNE (Feb. 4, 2002).

Figure III-F. Total Commercial and Industrial Loans Including Foreign Related Institutions: 1995–2004



Source: Federal Reserve Bank of St. Louis, Economic Data, Total Commercial and Industrial Loans Including Foreign Related Institutions; <http://research.stlouisfed.org/fred2/series/TOTCI/100/10yrs>.

Figure III-G. IT Equipment Sales: 2002



Source: J. Creswell, *Cisco's Worst Nightmare (and Sun's and IBM's and Nortel's and...): Tech's Big Guns Are Waging War with a New Foe: Used-Equipment Sellers*, FORTUNE (Feb. 4, 2002).

In 2002, the junkyards achieved second place in U.S. IT sales; they trailed IBM but led Cisco. The enormous secondary market volume and low resale prices had

devastating effects on the profits of telecom equipment manufacturers.¹⁰¹ The \$20 billion in 2002 junk sales represents approximately \$100 billion in lost revenue for primary producers, since auction prices were typically discounted 80 percent from retail value. That loss is big enough to reduce 2002 GDP by almost 100 basis points (a full percentage point) for the year.¹⁰²

NEGATIVE EFFECTS OF REGULATIONS ON INVESTMENT

The bubble has burst, but the regulatory structure remains. This has undermined investment incentives of network owners. In particular, regulations have helped to reduce the return on capital for telecommunications service providers¹⁰³ below their weighted average cost of capital,¹⁰⁴ as shown in Figure III-H. They have also increased the risk for investors by making telecommunications shares more volatile.¹⁰⁵ Both effects have seriously undermined capital spending in the telecommunications sector, as many researchers have documented.¹⁰⁶ The interaction between the telecommunications sector and the financial markets over the past three years amplified the depressing effects of regulations on investment by reducing output, employment, and productivity for the overall economy.

¹⁰¹ John Rutledge, *Secondary Markets and the Tech Rebound*, RUTLEDGE INVESTMENT STRATEGIES (2002).

¹⁰² GDP in 2002 was \$10.5 trillion dollars. Bureau of Economic Analysis, *Gross Domestic Product*, <http://www.bea.gov/bea/dn/nipaweb/TableView.asp#Mid>.

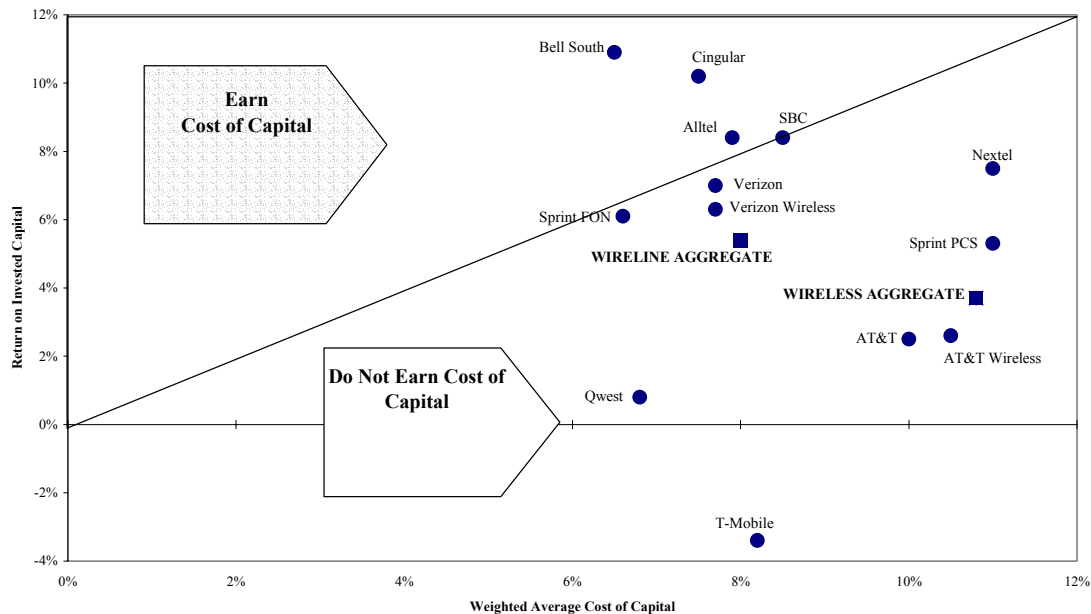
¹⁰³ The after-tax return on invested capital (ROIC) for telecommunications service firms decreased from a mean of 13.99 percent in 1997 to an average of 7.1 percent for 2001–2003. Rutledge Capital calculations (May 2004); COMPUSTAT Database Research Insight; Standard & Poors CD ROM (Apr. 2004).

¹⁰⁴ Companies finance their operations by using a combination of debt and equity. The weighted average cost of capital (WACC) estimates the overall opportunity cost of the mix of capital chosen by a firm. The WACC is estimated by identifying the approximate after-tax cost of each source of financing, then creating a weighted average using the proportions of each source in the total capital structure. The WACC is the required return on capital for the firm as a whole. See, for example, T. COPELAND, T. KOLLER, J. MURRIN, AND MCKINSEY & CO. INC., *VALUATION: MEASURING AND MANAGING THE VALUE OF COMPANIES*, 3D ED. (John Wiley, 2000).

¹⁰⁵ Allan T. Ingraham and J. Gregory Sidak, *Mandatory Unbundling, UNE-P, and the Cost of Equity: Does TELRIC Pricing Increase Risk for Incumbent Local Exchange Carriers?* Criterion Economics (2003).

¹⁰⁶ See, for example, Robert W. Crandall and Hal J. Singer, *An Accurate Scorecard of the Telecommunications Act of 1996: Rejoinder to the Phoenix Center Study No. 7*, Criterion Economics (2003).

Figure III-H. Weighted Average Cost of Capital vs. Returns on Invested Capital for U.S. Telecom Carriers: 2002



Source: Raul L. Katz and Carolina Junquera, *Managerial Strategies and the Future of ROIC in Telecommunications*, Booz Allen Hamilton Working Paper (Mar. 14, 2003).

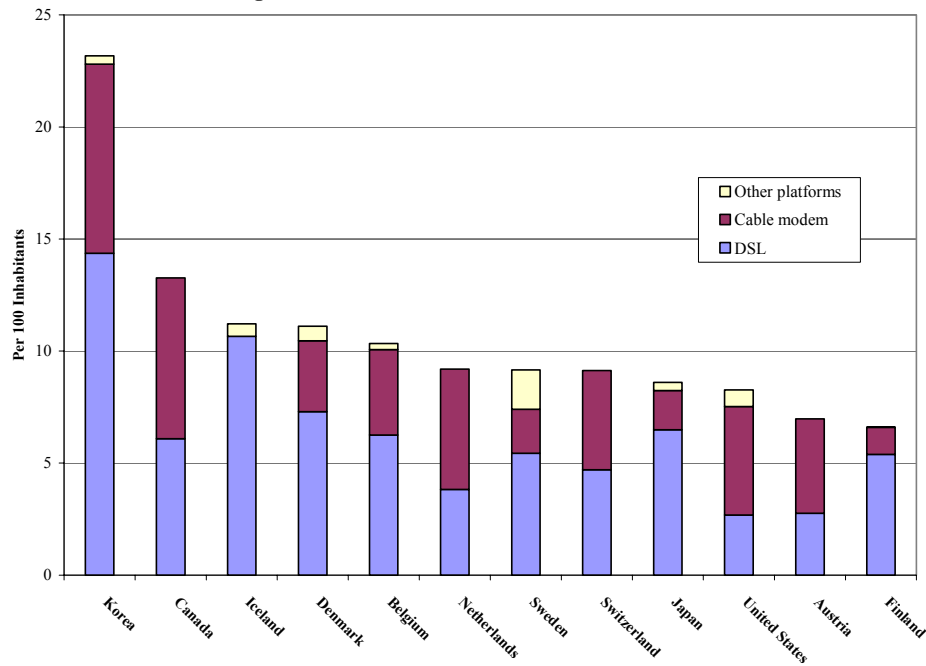
GLOBAL COMPETITIVENESS

Partly as a result of the drop in capital expenditures, the United States lags a number of other countries in access to high-speed telecommunications networks. The United States ranks eleventh globally and tenth in the Organization for Economic Cooperation and Development (OECD)¹⁰⁷ in terms of the number of broadband subscribers per 100 inhabitants.¹⁰⁸ As shown in Figure III-I, South Korea is by far the leader in this field. Hong Kong, Canada, and Taiwan follow by some distance. This level of deployment may yield companies in these countries a competitive advantage over U.S.-based companies in delivering high-value, knowledge-based services to customers both abroad and within the domestic market.

¹⁰⁷ Organization for Economic Cooperation and Development, *Broadband Access in OECD Countries per 100 Inhabitants* (June 2003); http://www.oecd.org/document/33/0,2340,en_2649_34225_19503969_1_1_1_1_00.html.

¹⁰⁸ Ironically, one of the factors limiting U.S. broadband deployment is the relative high rate of narrowband (dial-up) Internet access. Elsewhere, metered local telephone service makes dial-up access relatively expensive. Congressional Budget Office, *Does the Residential Broadband Market Need Fixing?* (Dec. 2003), at xiv.

Figure III-I. Broadband Access in OECD Countries



Source: Organization for Economic Cooperation and Development, *Broadband Internet Access in OECD Countries: A Comparative Analysis* (Oct. 2003); http://www.oecd.org/document/33/0,2340,en_2649_34225_19503969_1_1_1_1,00.html.

SUMMARY

The U.S. telecommunications industry needs help. The effects of the technology bubble are mostly past us, and the aggregate economy is recovering, but the telecom sector is still mired in difficult economic times. This creates a severe drag on U.S. economic growth, as the telecommunications sector has been a major contributor to growth and productivity across the economy. This connection will become more pronounced as future growth becomes increasingly driven by what Peter Drucker calls “knowledge workers.” In particular, he submits that economic growth will come from a “*continuing increase in the productivity of the one resource in which the developed countries still have an edge: ... the productivity of knowledge work and of knowledge workers.*”¹⁰⁹

Improvements in international telecommunications systems allow professional and technology jobs to be outsourced to Korea, China, and India. Those countries, recognizing the role that communications will play in creating wealth, are increasingly making advanced telecommunications a priority. Investment in high-speed systems makes workers and businesses in Beijing, Seoul, and New Delhi more accessible to global customers. American workers should not be handicapped with inefficient telecommunications rules as they compete in this international contest.

¹⁰⁹ Peter Drucker, *The Future That Has Already Happened*, FUTURIST MAG. (Nov. 1998), at 16.

IV EMERGING COMPETITIVE NETWORKS

Many telecommunications networks and applications have developed to compete with incumbent local exchange carriers. New technology has enabled communications networks to deliver multiple services to consumers. To further spur competition and investment in telecommunications, policymakers must end policies that favor one network over another and end price distortions driven by misguided approaches to funding universal service.

*

Separate, competitive networks are emerging across the telecommunications landscape, despite the problems encountered with network-sharing rules. These rival delivery platforms can and do compete with each other in providing voice, high-speed data, and video services. The six platforms are copper wires (owned by local exchange carriers), coaxial cable (owned by cable operators), mobile wireless, fixed wireless, satellite, and broadband over power lines. Some networks, such as the traditional copper telephone plant, have only a single operator providing service in each community, while other networks, such as mobile wireless, have multiple providers competing for customers. In addition to developing physical networks, maturing VoIP applications create “virtual networks” that allow any provider of broadband services to compete in voice, as well as other, product markets.

Technology has rendered the traditional view of *one network, one service*—voice over copper wires, video over coaxial cable—obsolete. Today’s world of convergence is rapidly moving communications networks to deliver multiple services to their customers. This transforms complements into substitutes. Originally, the phone wire and the TV cable were bundled to provide two distinct services; now each network seeks to sell the customer a “triple play” package of voice, video, and high-speed data, a new offering that initially brought the alternative platforms into direct rivalry.

Other networks can, and do, provide pieces of this package. Cellular operators supplying wireless voice service generate revenues nearly equal to those of fixed-line local exchanges; satellite TV providers serve over 20 million households and are growing rapidly as established cable companies now lose subscribers, year after year. Entirely new networks hope to form, such as a national fixed wireless system that cellular pioneer Craig McCaw is now organizing¹¹⁰ and a technology to deliver broadband over power lines. Even when a novel delivery system does not compete across the entire product space, its entry into one segment can disrupt markets and provoke enormous change.

¹¹⁰ Jeff Bounds, *Telecom Billionaire Craig McCaw Snaps Up Clearwire Holdings, Eyes “ITFS” Space*, DALLAS BUS. J. (Apr. 16, 2004).

Take satellite television. When two operators (DirecTV and Echostar) began offering competitive video service (in 1994 and 1996), the development spurred cable TV service providers to revamp operations. Starting in the late 1990s, substantial capital upgrades have been increasing bandwidth and digitalization of systems. While the immediate goal was to better fend off the competitive foray of satellite video, which offered many more channels and broadcast in a higher-quality digital format, cable systems found that their new, improved architecture could efficiently provide two-way Internet access. Cable modem service became the broadband market leader, a result defying industry experts. This, in turn, provoked local telephone carriers to intensify their rollout of phone-line broadband, DSL.

This chain reaction continues to ignite competitive fires. Today, phone companies are aligning with satellite TV operators to offer “triple play” packages, with phone-line delivery of voice and DSL, alongside satellite video.¹¹¹ In the second quarter of 2004, phone carrier SBC added about 365,000 new DSL customers, about 100,000 of which were bundled with DirecTV’s video service. The competitive dynamics brought phone companies into the triple-play space, even if their networks were not well equipped to deliver every service.¹¹² A price war erupted in mid-2004, with Cablevision (a New York-based cable operator with about 3 million subscribers) offering its “Optimum Triple Play,” consisting of a large bundle of cable TV program networks, unlimited domestic calling, and cable modem service, for \$90 per month—“a discount that takes dead aim at Verizon by essentially giving away unlimited phone service for free.”¹¹³

The heat promises to intensify if Internet-based technologies achieve their promise, a question that is now largely in the hands of regulators. With the development of VoIP and other Internet protocol (IP) applications (such as video), virtually any broadband connection can be used to deliver any one of the triple-play components. This is driving entrepreneurial investments in mobile wireless (third-generation) broadband, fixed wireless, broadband delivered by satellite, broadband delivered by power lines, competitive broadband service providers, and other advanced data delivery systems.

Figure IV-A depicts some of the many telecom networks available to most homes in the United States today. Utility poles and underground conduits carry the telephone company’s copper wires that offer POTS and DSL. Following a parallel path is the cable TV operator’s coaxial cable delivering video, broadband data, and, in some cases, voice.

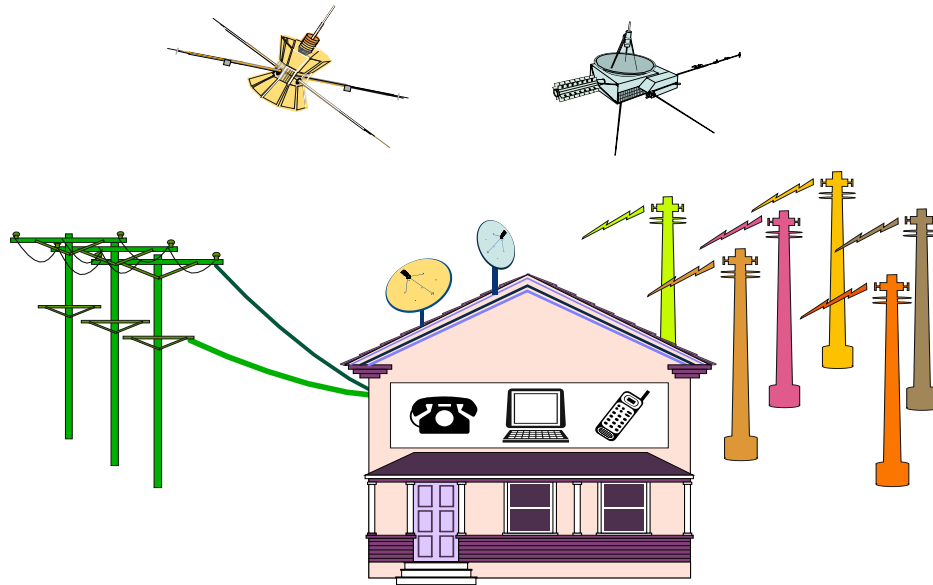
¹¹¹ SBC, *SBC, Echostar Announce Strategic Marketing Alliance* (Apr. 17, 2002); <http://www.sbc.com/gen/press-room?pid=4800&cdvn=news>; DirecTV, *BellSouth and DIRECTV Announce Agreement to Sell Digital Satellite Television Service as Part of BellSouth Answers Bundle* (Aug. 27, 2003); http://www.directv.com/DTVAPP/aboutus/headline.dsp?id=08_27_2003A; Verizon, News Release, *Verizon Adds DIRECTV Programming, Creating the Most Comprehensive, Top-Quality Service Bundle in the Market* (Jan. 29, 2004); http://newscenter.verizon.com/proactive/newsroom/release.vtml?id=83533&PROACTIVE_ID=cecdcaccbcac7cdcec5cecfcf5cececacbc7cccacc5cf.

¹¹² Jeff Baumgartner, *SBC to Pump Billions into IP Triple-Play Strategy*, CED BROADBAND DIRECT; <http://www.cedmagazine.com/cedailydirect/2004/0604/cedaily040622.htm>.

¹¹³ *Cablevision Takes Aim at Verizon with Price Cuts*, USA TODAY (June 21, 2004). Verizon owns the largest local telephone network in Cablevision’s service territory.

Consumers have two competing satellite options, each of which offers high-speed Internet downloads. Despite the seriously limited spectrum that is currently allotted, six national mobile wireless providers offer each home additional voice and, increasingly, broadband data choices.¹¹⁴

Figure IV-A. Competitive Telecommunications Pathways to the U.S. Household



Real-time events are drawing new last-mile connections that do not appear in Figure IV-A. VoIP makes voice just another data application that can be delivered over twisted-pair copper, coaxial cable, or other broadband connections. Allotting additional spectrum to mobile phones would lead to more mobile broadband and new fixed wireless networks. BPL could offer another data pipe. Ultimately, fiber optics may be extended from neighborhood nodes (where they go in many cable and telephone networks today) to residential premises, providing virtually unlimited bandwidth.

We describe these competing networks to show how technological convergence is enabling them to deliver multiple services to consumers.

¹¹⁴ The Department of Justice and the Federal Communications Commission are now evaluating a proposed merger between two of the six operators (Cingular and AT&T Wireless).

COPPER LOOP

Telephone networks have long consisted of a twisted pair of copper wires (the local loop), connected to a switch at a central office, from which point traffic was routed back into the loop or transported to distant nodes. The network was designed to provide circuit-switched voice service where the connection between telephones is always held open to provide a continuous communication channel. Services such as caller ID or voice-mail were added by upgrading equipment or software in central offices.

Voice communications use only a small portion of the transmission capacity of the copper loop. In the late 1990s, telephone companies began to deploy DSL technology, where the unused portions of the copper wire adjacent to the voice circuit are used to transmit data packets, providing a broadband connection. In packet-switched architectures, digital information is broken into small units that are transmitted and reassembled at the receiving end. No traffic travels over an exclusive channel. (The Internet is the standard example of a packet-switched network.) Broadband connections provide numerous services, including access to the World Wide Web and VoIP.

COAXIAL CABLE

Cable systems deliver video, broadband, and, sometimes, voice services to homes over wires. Coaxial cables are the primary conduit, high-capacity copper wires with shielding to allow transmission of radio frequencies—“spectrum in a tube”—without intermingling signals with wireless radio emissions. Distribution grids collect signals (using satellite downlinks, over-the-air antennas, microwave receivers, or fiber-optic links) at a head-end and then distribute this large package (consuming generous bandwidth) to neighborhood nodes via fiber-optic lines. Nodes usually serve between 100 and 1,000 homes. From there, coaxial cable connects end-users.¹¹⁵

Cable systems began in the United States in the late 1940s but were greeted with hostile regulations in the early 1960s when, instead of simply extending broadcast TV signals to areas without adequate reception, operators began wiring major cities to compete with broadcasters.¹¹⁶ With deregulation in the late 1970s, however, cable systems won the right to offer desirable programming and soon wired the country for service. By 1988, more than half of U.S. households subscribed; by 2002, more than half of all audience viewing was of cable network programs, rather than broadcast TV. Cable TV then attracted its own rivals, as two direct broadcast satellite (DBS) television systems launched service in 1994–1996. Industry insiders referred to the threat in dire terms—“the Deathstar.”¹¹⁷ Satellite garnered about 22 percent of multichannel video subscribers by 2003. See Table IV-A.

¹¹⁵ Thomas W. Hazlett, *Cable Television*, in MARTIN CAVE ET AL., EDS., 2 HANDBOOK OF TELECOMMUNICATIONS ECONOMICS (North Holland, forthcoming).

¹¹⁶ Robert W. Crandall and Stanley M. Besen, *The Deregulation of Cable Television*, 44 LAW & CONTEMP. PROBS. (Winter 1981).

¹¹⁷ Stephen Keating, CUTTHROAT: HIGH STAKES AND KILLER MOVES ON THE ELECTRONIC FRONTIER (Johnson Books, 1999), at 125.

**Table IV-A. Competing Video Delivery Technologies
(% of MVPD Households Served): 1993, 1998, and 2003**

	1993	1998	2003
Cable	94.89%	85.34%	74.87%
DBS	0.12%	9.40%	21.63%
Other MVPDs	4.99%	5.26%	3.50%

Note & Source: MVPD = multichannel video programming distributor. Federal Communications Commission, *Tenth Annual Report in the Matter of Annual Assessment of the Status of Competition in the Market for the Delivery of Video Programming*, MB Docket No. 03-172 (2004), Table 7.

Policymakers have not imposed regulations comparable to the wholesale access rules for local telephony on U.S. cable systems. Congress and the FCC have determined that cable companies are not common carriers.¹¹⁸ DBS companies entered the cable market by creating new distribution systems requiring large upfront capital outlays. And when cable companies saw satellite operators take market share by using high-quality, all-digital delivery systems with far more channels, they invested aggressively to confront the competitive challenge provided by satellite operators.¹¹⁹

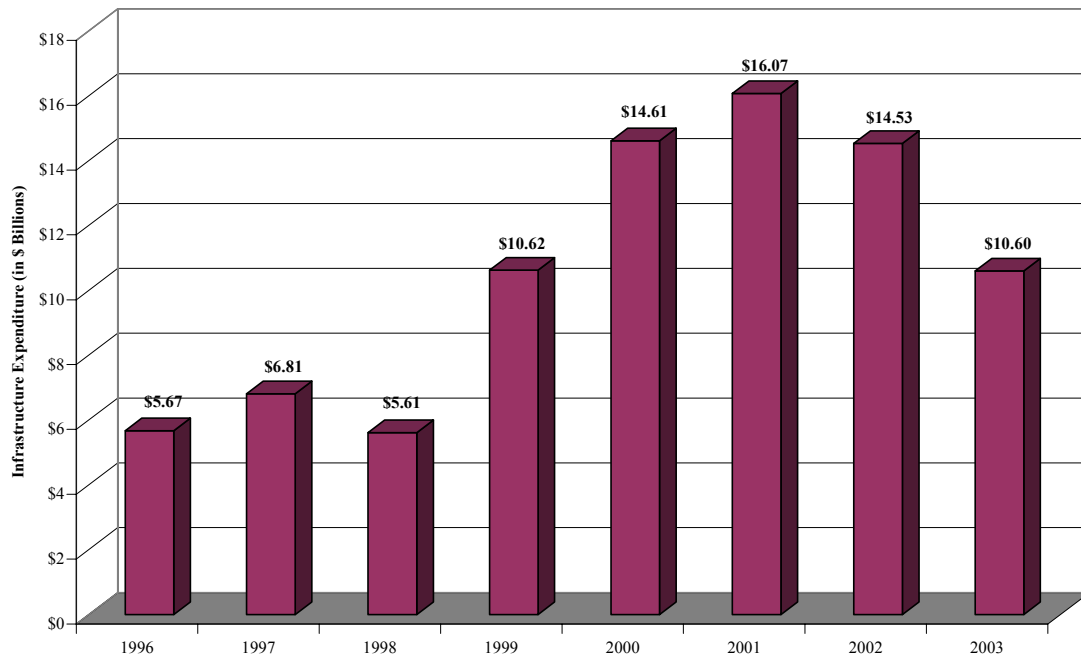
Cable Modem and DSL Competition

As seen in Figure IV-B, the cable industry aggressively increased capital expenditures in 1999 and spent over \$65 billion up through 2003. This risky investment, while no doubt encouraged by favorable conditions in capital markets in 1999–2000, survived the bursting of the stock market bubble. Cable operators transformed the typical pre-1999 analog, 64-channel, 450 MHz system architecture into a two-way, digital, 750 MHz system. The new architecture not only could economically deliver more channels—at least 200, depending on how spectrum is allocated between analog and digital packages—but could offer interactive services such as video-on-demand, telephony, and high-speed Internet access. Figure IV-C shows the growing availability of cable modem service.

¹¹⁸ Policymakers inserted explicit determination of this issue in the Cable Communications Policy Act of 1984 (47 U.S.C. § 541(c) (2002)) and again in the Telecommunications Act of 1996 (61 47 U.S.C. § 571 (2002)). Nonetheless, they levied some carriage requirements on operators, including the obligation to carry local broadcast TV programming and to provide certain public, educational, or government programming. In practice, these mandates are exceedingly modest compared with the risk associated with broader “open access” rules. See Thomas W. Hazlett and George Bittlingmayer, *The Political Economy of Cable “Open Access,”* 4 STAN. TECH. L. REV. (2003); http://stlr.stanford.edu/STLR/Articles/03_STLR_4.

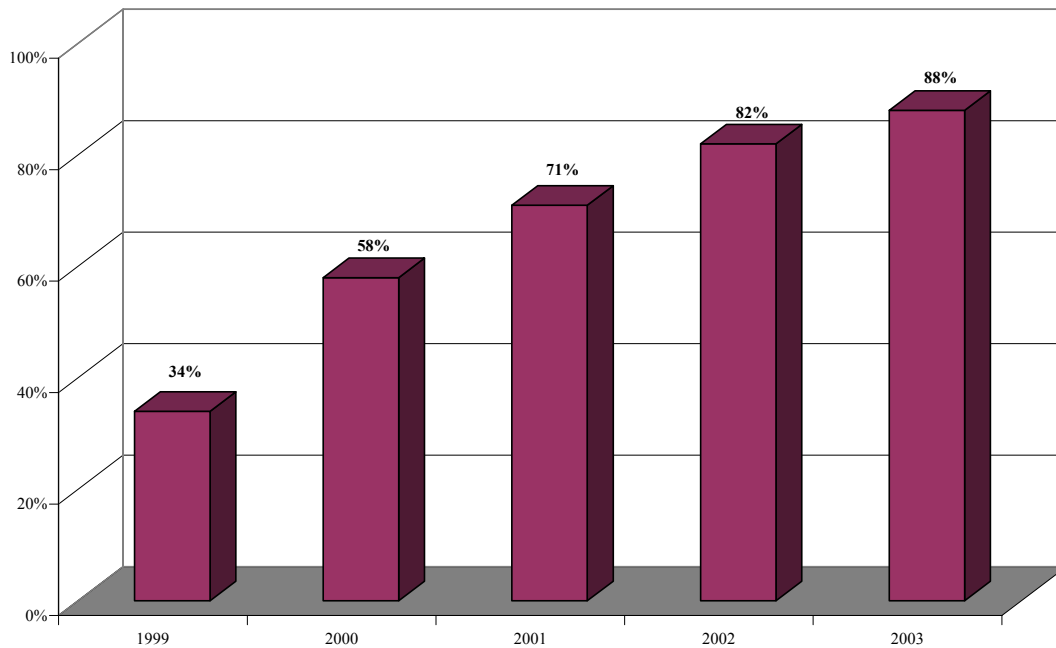
¹¹⁹ Congressional Budget Office, *Does the Residential Broadband Market Need Fixing?* (Dec. 2003), at 25.

Figure IV-B. Capital Expenditures by U.S. Cable Operators: 1996–2003



Source: National Cable and Telecommunications Association; <http://www.ncta.com/Docs/PageContent.cfm?pageID=314>.

Figure IV-C. Cable Modem Availability (% of Homes Passed by Cable): 1999–2003



Sources: Morgan Stanley, *What Does the Market Expect?* (Apr. 8, 2004); <http://www.ncta.com/Docs/PageContent.cfm?pageID=316>.

Cable companies invested in these upgrades to fend off satellite rivals. But these enhanced capacities produced strong incentives for cable operators to enter additional markets. In residential broadband, cable operators succeeded not only to challenge local exchange carriers, but—as *Fortune* recently put it—to “trounce DSL in the broadband arena.”¹²⁰ This observation stems from cable modems’ market share, in excess of 60 percent, against DSL and other residential high-speed access providers.¹²¹ In response, phone companies appeared to step up their efforts to provide DSL service.¹²²

Broadband Service Providers

A combination of strong demand and reduced capital costs led new cable TV providers to enter local markets with their own infrastructure in the late 1990s. Several firms were capitalized to provide new competitive networks. They offered consumers lower prices with the original “triple play” bundles. This brought broadband service providers (BSPs, formerly called overbuilders) into direct competition with both cable and telephone incumbents.

BSPs have provided substantial benefits to consumers. A February 2004 study by the General Accounting Office¹²³ (now the Government Accountability Office) found that head-to-head cable competition reduced prices in selected markets by 15–41 percent, discounts over and above those associated with satellite TV competition (which exists both in overbuilt and nonoverbuilt markets).¹²⁴ Results have been less positive for investors. Financial markets have withdrawn their willingness to invest in such ventures, and leading BSPs—including RCN,¹²⁵ Knology, and Wide Open West—have reorganized under bankruptcy laws.

Yet many BSPs are still operating and by year-end 2003 were serving about 1.4 million subscribers. Given that the FCC estimates that the companies average a penetration rate (subscribers-to-homes-passed ratio) of 25 percent, about 6 million households enjoy substantial competitive benefits. If the average retail discount from

¹²⁰ Stephanie N. Mehta, *King Comcast; Brian Roberts Rules the Biggest Cable Company in the Country; Now, with the Pending Sale of QVC, He’s Stronger Than Ever. So What’s He Going to Do with All That Power?* FORTUNE (July 21, 2003), at 70.

¹²¹ Legg Mason, 2003: *A Banner Year for Broadband as DSL Gains Momentum* (Mar. 5, 2004), at 5.

¹²² At the end of 1997, one industry trade publication noted that DSL deployment had been very slow but commented: “There are, however, competitive forces at work that might light a fire under the regional Bells in 1998. For one, the carriers may see some competition from cable TV operators. The cable industry is starting to address some of the shortcomings of its infrastructure.” Saroja Girishankar, *DSL Options Coming from Carriers, ISPs*, INTERNET WEEK.COM (Dec. 31, 1997); <http://www.internetweek.com/news/news1231-1.htm>.

¹²³ General Accounting Office, *Wire-Based Competition Benefited Consumers in Selected Markets*, GAO-04-241 (Feb. 2004). The lower prices reported obtained in five of the six market pairs studied. Overbuilt cable markets were matched with similar markets without overbuilt competition.

¹²⁴ General Accounting Office, *Issues Related to Competition and Subscriber Rates in the Cable Television Industry*, GAO-04-8 (Oct. 2003).

¹²⁵ RCN filed for bankruptcy on May 27, 2004. Chris Nolter, *RCN Sinks into Ch. 11*, THEDEAL.COM (May 28, 2004).

overbuilding is just 10 percent, which is at the low end of estimates, then the annual consumer savings exceed \$250 million.¹²⁶

While passing only a few percent of total U.S. homes, overbuilders demonstrate what is possible when capital investment creates new network infrastructure. One observation is that rules that allow profitable provision of ancillary services—such as multichannel video—have very important indirect impacts on the ability of markets to offer competitive telephony services. This, of course, stems from strong economies of scope—cost savings realized when one company offers multiple products (cable and then telephony) via the same platform. The emergence of BSPs underscores the extent to which telecommunications policies are interrelated and the degree to which rules opening one market to competition can strongly promote competition elsewhere.

SATELLITES

Direct broadcast satellite carriers are important both because they operate their own video distribution networks in competition with established cable providers and because these firms have triggered competitive dynamics with far-reaching benefits. In multichannel video, DBS market share is now approaching 25 percent.¹²⁷ For the first time since the birth of cable in the 1950s, the number of households subscribing to cable has declined with an estimated loss of 900,000 U.S. subscribers in the past two years. Industry analysts suggest: “For an explanation ... cable executives need only look to the sky: The satellite industry has grown from virtually zero 10 years ago to about a quarter of all U.S. homes that pay for TV.”¹²⁸ As discussed, DBS is also credited with prompting cable TV incumbents to upgrade systems, a measure that has stimulated residential broadband deployment. Currently, telephone companies are forming alliances with satellite TV carriers to respond to cable TV system bundles. BellSouth, SBC, and Verizon have each entered partnerships with satellite systems to sell video channels to their telecom customers.¹²⁹ In the course of this rivalry, customers receive substantially more communications services at heavily discounted per-unit rates.

Satellite providers are also able to deliver broadband Internet access to households and businesses. The FCC reports that DirecWay, DirecTV’s broadband service, enlisted about 166,000 subscribers as of mid-2003.¹³⁰ In addition, thousands of

¹²⁶ Assuming that cable subscribers pay an average of \$45 monthly, a 10 percent discount equals \$4.50. If 80 percent of households in BSP markets subscribe (somewhat higher than average owing to lower rates and greater competition), annual consumer gains are approximated by: $\$4.50 \times 6,000,000 \times 12 \times 0.8 = \$259,200,000$.

¹²⁷ See Table IV-A.

¹²⁸ Peter Grant, *Cable Trouble: Subscriber Growth Stalls as Satellite TV Soars*, WALL ST. J. (Aug. 4, 2004), at 1.

¹²⁹ Marguerite Reardon, *Rumble in the “Triple Play” Jungle*, CNET NEWS.COM (June 21, 2004); <http://news.com.com/2100-1037-5242738.html>. See also Peter Grant, *Cable Trouble: Subscriber Growth Stalls as Satellite TV Soars*, WALL ST. J. (Aug. 4, 2004), at 2.

¹³⁰ Federal Communications Commission, *Tenth Annual Report in the Matter of Annual Assessment of the Status of Competition in the Market for the Delivery of Video Programming*, MB Docket No. 03-172 (2004), at 52.

business customers, both domestic and international, use satellite for high-speed data connections.

Two issues quickly arise with satellite broadband. Latency was noticeably problematic when long-distance phone connections were provided via satellite, a situation remedied by moving these links to fiber-optic lines. In many applications, including standard video entertainment and most residential Internet use, microsecond transmission pauses are not troubling. (They are noticeable only in certain types of interactive applications, in fact.) The more important constraint arises from the limited radio spectrum allocated to satellite services, which restricts the number of DBS operators that can enter the market. Spectrum capacity and orbital slots can be increased with beam-focusing technologies that reuse frequencies, in much the same way that (terrestrial) cellular phone providers reuse bandwidth from cell to cell.

Yet licensing constraints have limited entry into satellite TV markets and thus have reduced both competitive pressure and operators' capacity. In April 2002, SES AMERICOM, a subsidiary of SES Astra, a leading European provider of satellite video and broadband services, petitioned the FCC for permission to offer direct-to-home video and broadband satellite service in the United States.¹³¹ Regulatory barriers were

¹³¹ SES AMERICOM described its plans in this release:

Dean Olmstead, President and CEO of SES AMERICOM, speaking today at the Satellite Entertainment 2002 conference in Monterey, California, said: "These television services will be provided via a new satellite that we intend to launch into the 105.5° West Longitude orbital slot. Another new SES AMERICOM satellite, at the adjacent 105° W.L. slot, will enable us to provide high-speed broadband connections to U.S. residences. All of these services—TV and broadband—will be available to U.S. consumers who purchase a single, small satellite dish and related equipment, into which the latest two-way digital technologies will have been incorporated."

SES AMERICOM intends to offer the new platform, named AMERICOM2Home[®], using a license granted to its affiliate by the Government of Gibraltar, relating to an orbital location over the United States at 105.5¼ W.L. This slot falls directly between orbital positions used by DirecTV and EchoStar at 101¼ and 110¼, respectively. Both AMERICOM2Home[®] and the existing satellites use frequencies in the 12.2-12.7 GHz range, which is set aside internationally for direct broadcasting to the home. SES AMERICOM also holds FCC licenses for both Ku-band and Ka-band satellites at the 105¼ W.L. location.

Olmstead explained that the new AMERICOM2Home[®] system will be different from the current satellite television services offered by EchoStar and DirecTV. Unlike these providers, SES AMERICOM itself will not offer any retail services to consumers. Instead, Olmstead explained, "We will create a best-in-class DBS satellite platform, on which we expect a wide variety of content providers—large and small, established and start-up, mass market and niche, advertising-supported and pay-per-view—will lease capacity in order to offer their programs and interactive entertainment directly to American consumers."

SES AMERICOM, Press Release, *SES AMERICOM Files FCC Petition for New Satellite Television and Internet Platform* (Apr. 25, 2002); http://www.ses-americom.com/media/2002/04_25_02.html.

substantial, however. In March 2003, SES AMERICOM shifted course and entered a partnership with DBS incumbent EchoStar that leased its Gibraltar-based satellite capacity in a long-term agreement.¹³² Such regulatory barriers create serious impediments to expanding broadband and video competition.¹³³

MOBILE WIRELESS NETWORKS

The cellular telephone duopoly ended with entry by personal communications services and specialized mobile radio (SMR) licensees. In a proceeding formally initiated in 1990, the FCC allocated 120 MHz to six new PCS licenses in the 1.9 GHz band. In a series of auctions in 1994–1996, PCS bidders were able to aggregate permits to create regional or national service territories.

PCS licensees began constructing competing wireless telephone systems just as Fleet Call, now Nextel, was deploying a nationwide wireless network using SMR licenses. Nextel used licenses originally dedicated for local dispatch services (taxis and pizza delivery). A regulatory waiver allowed Nextel to offer standard telephone calls over the allocated frequencies.¹³⁴

By 2001, six national networks—AT&T Wireless, Cingular (a joint venture of SBC and BellSouth), Nextel, Sprint PCS, T-Mobile, and Verizon Wireless—emerged. They served about 85 percent of U.S. subscribers. No other industrialized country supports more competing networks.¹³⁵ This rivalry has resulted in a sharp decline in wireless telephone charges, with the average price per minute of use declining 79 percent between 1993 and 2002.¹³⁶ In response, usage has increased more than *twentyfold* during this period.¹³⁷ Intense competitive pressure has made profits elusive, a situation investment analysts describe as “profitless prosperity.”¹³⁸

¹³² Federal Communications Commission, *Tenth Annual Report in the Matter of Annual Assessment of the Status of Competition in the Market for the Delivery of Video Programming*, MB Docket No. 03-172 (2004), at 52.

¹³³ Similar entry barriers defeated the efforts of Northpoint Technology to rival incumbent cable and satellite carriers. See Thomas W. Hazlett, *Entrepreneurs Need Not Apply*, FIN. TIMES ONLINE (Jan. 15, 2004); <http://news.ft.com/servlet/ContentServer?pagename=FT.com/StoryFT/FullStory&c=StoryFT&cid=1073281062488&p=1012571727285>.

¹³⁴ A former FCC attorney, Morgan O’Brien, provided the entrepreneurial vision driving Nextel. See Thomas W. Hazlett, *The Wireless Craze, the Unlimited Bandwidth Myth, the Spectrum Auction Faux Pas, and the Punchline to Ronald Coase’s “Big Joke”: An Essay on Airwave Allocation Policy*, 14 HARV. J.L. & TECH. 335 (2001), at 426–28; <http://jolt.law.harvard.edu/articles/pdf/14HarvJLTech335.pdf>.

¹³⁵ Thomas W. Hazlett, *Is Federal Preemption Efficient in Cellular Phone Regulation?* 56 FED. COMM. L.J. (Dec. 2003), at 169.

¹³⁶ Cellular Telecommunications Industry Association, *CTIA’s Semi-Annual Wireless Industry Survey Results, June 1985–December 2003*; http://files.ctia.org/img/survey/2003_endyear/752x571/SEMI-A2.jpg.

¹³⁷ Cellular Telecommunications Industry Association, *CTIA Semi-Annual Data Survey Results Book 1985–2003* (Nov. 2003), at 217–18.

¹³⁸ S. Flannery et al., *Wireline Telecom Services: 3Q02 Preview*, MORGAN STANLEY, DEAN WITTER (Oct. 16, 2002), at 27. See also Figure III-A.

Each wireless network comprises about 20,000 base stations, which constitute the electronic hub of each cell. Base stations feature antennas to send and receive signals to and from subscribers with hand-held units; signals received are then sent on high-capacity conduits to the phone call's destination. Since cellular service began, about \$150 billion in capital has been invested in creating U.S. wireless telephone infrastructure.¹³⁹ In 2003, about \$90 billion in revenue was generated from approximately 150 million subscribers, who used over 800 billion minutes of airtime.¹⁴⁰

The success of mobile telephony in the United States is striking considering the limited amount of radio spectrum available to the industry. The United States allocates approximately 170 MHz to mobile phone services. This is approximately 100 MHz less than countries of comparable income levels. See Figure IV-D. This regulation-imposed constraint (abundant underutilized spectrum could be allocated to licenses and sold at auction to competing bidders) costs the U.S. economy substantial sums in lost consumer surplus. More directly relevant to the analysis of local telephone competition, allocated spectrum would lower per-minute rates for wireless phone use and expand wireless broadband connectivity. These networks, already provided by multiple competitors, offer close substitutes to services provided by incumbent local exchange carriers. By misallocating a vital input, regulators greatly hinder telecommunications policy goals.

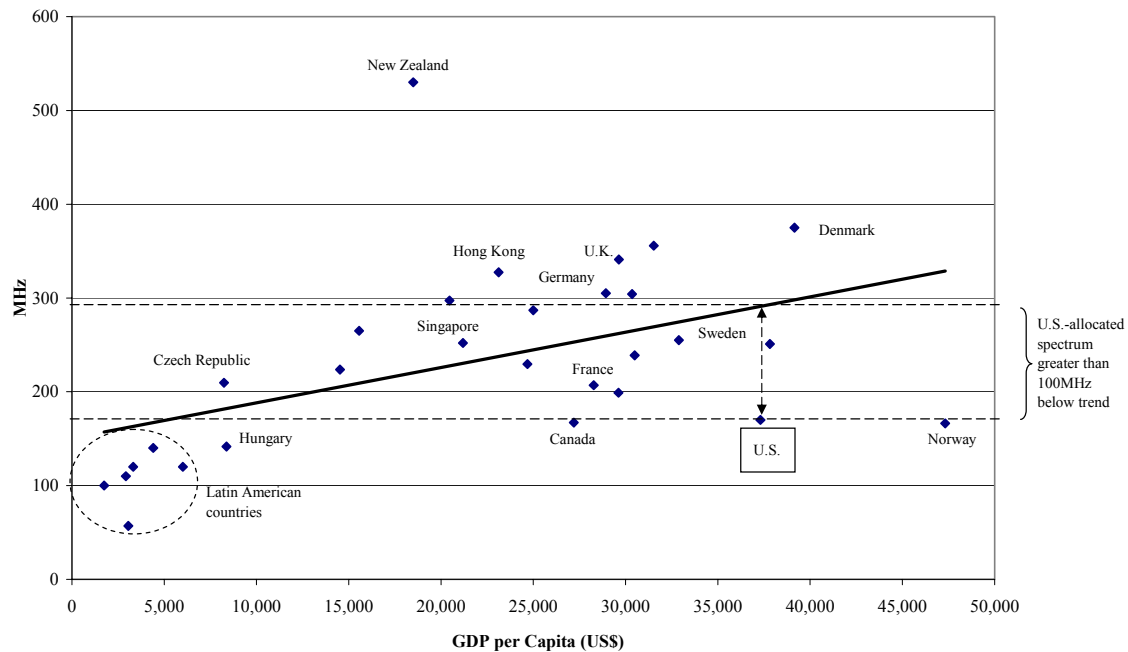
FIXED WIRELESS

Fixed wireless systems use radio waves to make a broadband connection between two stationary points. Firms employ a variety of technologies and transmit over a few feet or a few miles, using proprietary or open standards, on either licensed or unlicensed frequencies. Considerable interest is being shown in systems being developed internationally, generically called fourth-generation. The Arraycomm iBurst system, sold by Vodaphone in Australia, delivers high-speed (1 MBPS) service to mobile users. IP Wireless's New Zealand system uses a different wireless technology to provide similar high-speed access, with costs of just \$30 per month. About 5 million wireless broadband customers in South Korea use Qualcomm's EV-DO technology. Craig McCaw's Clearwire venture is attempting to establish a national fixed wireless broadband option throughout markets in the United States by using frequencies in the 2.5 GHz band.

¹³⁹ Cellular Telecommunications Industry Association, *CTIA's Semi-Annual Wireless Industry Survey Results, June 1985–December 2003*; http://files.ctia.org/img/survey/2003_endyear/752x571/Annual_Table_Dec_2003.jpg.

¹⁴⁰ Cellular Telecommunications Industry Association, *CTIA's Semi-Annual Wireless Industry Survey Results, June 1985–December 2003*; http://files.ctia.org/img/survey/2003_endyear/752x571/Revenues_Dec03.jpg and http://files.ctia.org/img/survey/2003_endyear/752x571/MOU_Dec03.jpg.

Figure IV-D. Spectrum vs. GDP per Capita



Source: Thomas W. Hazlett and Roberto Muñoz, *A Welfare Analysis of Spectrum Allocation*, Manhattan Institute for Policy Research (June 10, 2004).

BROADBAND OVER POWER LINES

Broadband over power lines may become an additional broadband rival. BPL sends digital information over the wires used to transport electricity around cities and into homes.¹⁴¹ After years of efforts to overcome technical difficulties, the first commercial rollout of BPL occurred in Spring 2004, under the auspices of Cinergy in Cincinnati.¹⁴² All participants in the telecommunications industry will follow the developments.

BPL sends radio waves through electric wires in a way that is similar to how DSL and cable modems use copper phone wires and coaxial cable. The technology uses medium voltage lines to transport data to neighborhoods. In some networks, lower voltage lines then transport the data into households. In others, fixed wireless links connect neighborhood nodes to homes.

Of course, electric wires were not designed to be conduits for radio frequencies. Consequently, radio signals can both enter the wire and interfere with the BPL signal and bleed out of the electric wires, interfering with wireless radio signals. Advanced technologies have adapted BPL to avoid the first problem. Signal interference with radio

¹⁴¹ A second application of BPL that uses the internal electric wiring of a house to transport data around a house is called in-house BPL. It can, for example, extend a phone network or create a local area network (LAN).

¹⁴² Bob Gibson, *Broadband over Power Lines: Can It Deliver on Its Promise in Rural America?* 45 MGMT. Q. (Apr. 1, 2004). *Cinergy to Offer Broadband Services over Power Lines*, 29 ENERGY USER NEWS (Apr. 1, 2004).

systems is more controversial. Amateurs and ham radio operators raise concerns about BPL systems' ability to comply with noninterference rules.¹⁴³ The FCC has proposed creating rules specific to BPL. While the FCC's proposals seem to limit conflicts between BPL and other radio users, delays and regulatory uncertainty could undermine investment incentives to develop this emerging telecommunications alternative.

VOIP: THE NETWORK INDEPENDENT SERVICE¹⁴⁴

The first half of 2004 saw a marked increase in a new voice telephone service delivered over the Internet, called voice over Internet protocol.¹⁴⁵ One company, Vonage, has now signed up more than 200,000 VoIP customers.¹⁴⁶ Skype, a software application that allows two PC-connected users to talk over broadband connections without any incremental charge, has been downloaded over 17 million times.¹⁴⁷ Many other suppliers offer various VoIP services nationwide.¹⁴⁸ Traditional cable companies like Comcast, Time Warner, Cablevision, and Cox and telecommunications services firms like AT&T and Qwest are also entering the market.¹⁴⁹ A key question is how regulators will respond.

VoIP has the potential to put further downward pressure on telecommunications prices, and this threatens to erode subsidies for universal service, a policy concern we address at the end of this section. Because taxes on traditional telephone service fund the subsidies, regulators may view reducing revenues through price competition as *too much market rivalry*. See Table IV-B for a sample of current VoIP offerings.

VoIP delivers consumers different levels of service quality. The largely unregulated wireless phone market has revealed that different consumers have different preferences over quality. Some are willing to pay for higher levels of quality (in terms of voice quality, size of network, and/or dropped calls), while others are not. The fact that

¹⁴³ Federal Communications Commission, *Notice of Proposed Rulemaking in the Matter of Carrier Current Systems, Including Broadband over Power Line Systems* (ET Docket No. 03-104) and *Amendment of Part 15 Regarding New Requirements and Measurement Guidelines for Access Broadband over Power Line Systems* (ET Docket No. 04-37), FCC 04-29 (Feb. 23, 2004).

¹⁴⁴ Robert W. Hahn helped write this part of the report, which draws from earlier work by Robert W. Crandall, Robert W. Hahn, Robert E. Litan, and Scott Wallsten, *Why the Government Should Not Regulate Internet Telephony*, AEI-BROOKINGS JOINT CENTER FOR REGULATORY STUDIES REGULATORY ANALYSIS 03-12 (Dec. 2003).

¹⁴⁵ *If You Can't Beat 'em, Join 'em*, ECONOMIST (Dec. 20, 2003). For instance, Vonage offers VoIP by touch-tone, corded, or cordless phone, while Skype offers VoIP services via personal computer. *What Is VoIP?*; www.vonage.com/help_voip.php. Bruce Bahlmann, *Broadband VoIP: Skype, Vonage, Net2Phone, etc.*, BROADBAND PROPS. (Mar. 2004).

¹⁴⁶ Vonage, *Vonage® Activates 200,000th Line: First Broadband Telephony Provider to Reach 200,000 Line Milestone* (July 13, 2004); *Gallup Survey Highlights VoIP Potential*, UBS INV. RES. (Apr. 8, 2004), at 2; http://www.vonage.com/media/pdf/res_04_08_04.pdf.

¹⁴⁷ Skype Homepage; <http://www.skype.com>.

¹⁴⁸ *If You Can't Beat 'em, Join 'em*, ECONOMIST (Dec. 20, 2003). Qwest, *Qwest Communications Is First Major Telecom Company to Provide Voice over Internet Protocol Services to Customers* (Dec. 10, 2003). *Comcast to Offer VoIP to 40 Million by 2006* (May 27, 2004); <http://www.smh.com.au/articles/2004/05/27/1085461868612.html?from=storyrhs&oneclick=true>.

¹⁴⁹ *If You Can't Beat 'em, Join 'em*, ECONOMIST (Dec. 20, 2003).

consumers use wireless phones at all—where they *expect* signal quality to be less than what they would find on a nearby fixed line—strongly suggests that consumers are willing to consider the tradeoffs (e.g., the convenience of mobility for lower-quality connections). Consumers will exercise similar preferences in the VoIP market, with a range of alternative qualities supplied, provided that regulators allow choice. By imposing inflexible standards, regulation could kill off some of the least expensive, most competitive VoIP services now emerging.

FCC Chairman Michael Powell suggests that the burden of proof for regulating VoIP “should be on those who want regulations extended.”¹⁵⁰ Newly proposed legislation in Congress would prevent states from regulating VoIP and would limit the types of regulations the federal government could impose on VoIP.¹⁵¹ Meanwhile, the FCC is embroiled in a debate on how to regulate VoIP, and state regulators, concerned about revenues raised through telecommunications taxes, are pushing for the right to tax VoIP. We return to these issues in our policy analysis in Section V.

UNLEASHING COMPETITIVE TECHNOLOGY

The opportunities for competitive network development are ripe. To unleash this competition and stimulate investments, policymakers must not only end policies that favor one network over another but also end price distortions driven by misguided approaches to providing universal service. Before outlining affirmative competitive policies in Section V, we review the historic evolution of funding universal service—a social good that, as currently provided, heavily taxes the competitive telecommunications sector.

¹⁵⁰ Mark Wigfield, *FCC Holds Hearing on Internet Telephony*, DOW JONES NEWSWIRE (Dec. 1, 2003).

¹⁵¹ On April 5, 2004, Senator John Sununu (R-NH) introduced S. 228, “VoIP Regulatory Freedom Act of 2004,” and Representative Chip Pickering (R-MS) introduced H.R. 4129, “VoIP Regulatory Freedom Act of 2004”; <http://www.techlawjournal.com/topstories/2004/20040405.asp>.

Table IV-B. VoIP Option Plans			
Company	Plan	Monthly Fee	Features of Plan
Vonage	Basic 500	\$14.99	500 minutes of local and long-distance calling within the United States and Canada.
	Unlimited Local	\$24.99	Unlimited local and regional calling, plus 500 long-distance minutes within the United States and Canada.
	Premium Unlimited	\$29.99	Unlimited local and long-distance calling within the United States and Canada.
	Small Business Basic	\$39.99	1500 local and long-distance minutes for calling anywhere within the United States and Canada.
	Small Business Unlimited	\$49.99	Unlimited local and long-distance calling within the United States and Canada.
Skype	All Destinations	€0.017 per minute to 22 countries worldwide.	Skype-to-Skype calls are free of charge. Rates for other calls vary from country to country.
AT&T	CallVantage Service	\$34.95	Unlimited local and long-distance calling.
Packet8	Freedom Unlimited	\$19.95	Unlimited calls in the United States and Canada. Unlimited worldwide calls to other Packet8 members.
	Business 2000	\$34.95	2000 business calling minutes in the United States and Canada. Unlimited calls to other Packet8 members.
Lingo	Basic Plan	\$14.95	500 U.S., Canada, and Western Europe anytime minutes. Unlimited calls to other Lingo subscribers.
	Unlimited Plan	\$19.95	Unlimited U.S., Canada, and Western Europe anytime minutes. Unlimited calls to other Lingo subscribers.
	Unlimited International Plan	\$79.95	Unlimited long-distance calling within the United States, to Canada, and to many other international countries. Unlimited calls to other Lingo subscribers.
	Business Unlimited Plan	\$49.95	Unlimited U.S., Canada, and Western Europe anytime minutes. Free fax line with a low per-minute rate based on where one is faxing.
	Business Unlimited International Plan	\$99.95	Unlimited long-distance calling within the United States, to Canada, and to many other international countries. Free fax line.
Cablevision	Optimum Voice Service	\$34.99	Unlimited calling throughout the United States and Canada.
Cox Communications	Cox U.S. Savings Plan	\$3.95	\$0.07 per minute for interstate long-distance and intrastate long-distance calling.
	Simply Five Savings Plan	\$4.95	\$0.05 per minute for interstate long-distance and intrastate long-distance calling.
	Cox U.S. 250 Savings Plan	\$15.00	250 minutes of intrastate and interstate usage. Charge of \$0.07 per additional minute.
	Cox U.S. 500 Savings Plan	\$25.00	500 minutes of intrastate and interstate usage. Charge of \$0.05 per additional minute.

Sources: <http://www.vonage.com/products.php>; <http://www.skype.com/skypeout/help.globarate.html>; http://www.usa.att.com/callvantage/savings_calc/index.jsp; <http://www.cox.com/Telephone/directdial.asp>; <http://www.optimumvoice.com/index.jhtml?pageType=pricing>; <http://www.packet8.net>; <https://www.lingo.com/guWeb/>; <http://www.dcs.net2phone.com/account/voiceline/english/callingplan.asp>; <http://www.galaxyvoice.com>;

Universal Service

The term “universal service”—that “some sort of connection with the telephone system should be within reach of all”¹⁵²—was coined by Theodore N. Vail, creator of the Bell System and chairman of AT&T, in the early 1900s to describe the benefits of one national telephone company. Regulators later embraced the goal, seeking to extend network reach. This required extending telephone lines to areas that could not be profitably served. Regulators developed a system of financing that relied on cross-subsidization, a pricing structure that charges some customers rates above costs so that others can pay rates below cost. Long-distance, urban, and business telephone services are generally billed above cost; local, residential, and rural services are often subsidized. Because individual usage patterns cross categories—a rural business uses long-distance service, for example—the actual incidence of the taxes levied (in the form of high prices) and the subsidies received are complicated to trace. Cross-subsidization is all the more complex because of secondary effects—for instance, the impact on consumers of higher telephone charges for businesses.

When AT&T was a monopoly, subsidies were provided as intracompany transfers. Today, universal service policy is implemented through a mix of transfers. Some continue to be intrafirm, as a given telephone company serves some customers at a loss, offset by high margins elsewhere. Some transfers are made between firms, however, as taxes are collected and paid out to qualifying networks. But the basic flow of subsidies remains largely unchanged.

Supporters of universal service policies point to both economic and social benefits from the policy. Phone systems exhibit network effects, meaning that the value of the service is related to the number of users connected to it. The social benefit of connecting an additional user to the telephone network is therefore greater than the private benefit that a new user personally experiences. The goal of universal service policy is to ensure that as many Americans as possible have telephone service. The ability to use the phone as a tool for work, education, and information has made it an essential part of everyday life that has assisted both economic development and social welfare. For example, the ability of all households to call “911” is viewed as crucial to public safety. Policymakers reaffirmed support for universal service in the Telecommunications Act of 1996.¹⁵³

¹⁵² Theodore N. Vail, in AT&T ANNUAL REPORT (1910), at 22.

¹⁵³ “The goals of universal service, as mandated by the 1996 Act, are to promote the availability of quality services at just, reasonable, and affordable rates; increase access to advanced telecommunications services throughout the Nation; advance the availability of such services to all consumers, including those in low income, rural, insular, and high cost areas at rates that are reasonably comparable to those charged in urban areas. In addition, the 1996 Act states that all providers of telecommunications services should contribute to Federal universal service in some equitable and nondiscriminatory manner; there should be specific, predictable, and sufficient Federal and State mechanisms to preserve and advance universal service; all schools, classrooms, health care providers, and libraries should, generally, have access to advanced telecommunications services; and finally, that the Federal-State Joint Board and the Commission should determine those other principles that, consistent with the 1996 Act, are necessary to protect the public interest.” http://www.fcc.gov/wcb/universal_service/.

Currently, federal universal service support is divided into four categories: high-cost support; low-income; schools and libraries; and rural health care. High-cost support goes to carriers in areas of the country—generally rural carriers—where the cost of phone service is considerably more than the national average. Low-income support goes to customers who qualify for reduced-rate services. The remaining two categories subsidize access and equipment. For the year 2002, the federal government spent about \$5.3 billion through the FCC, with roughly 56 percent of that amount for high-cost support, 31 percent for schools and libraries, 13 percent for low-income, and 0.4 percent for rural health care.¹⁵⁴ This federal universal service support rose from \$3.5 billion in 1998.

Financial support for the federal Universal Service Fund comes mainly from subscriber line charges. This is an amount added to each fixed-line phone bill. In 2002, the subscriber line charge of \$5.64 added approximately 32 percent to the residential phone bill for local services. In July 2003, the charge was capped at \$6.50 per month.¹⁵⁵

In addition to these federal programs, state universal service programs exist. Typically, state regulators increase business, toll, premium services,¹⁵⁶ and carrier access rates¹⁵⁷ above costs to price basic residential service below costs. Intrastate rates generally are uniform across a company's service territory, even though network access costs are greater in sparsely populated areas than in larger cities. State universal service funds often provide subsidies for companies that serve higher-cost areas. These funds may include subsidies for low-income users and emergency services.

Universal service policies largely fail cost-benefit tests. They distort price signals and make phone service less useful. They tend to increase charges where demand is most responsive to price, such as in long-distance service and decrease prices for basic service—the least price-responsive telecom service. Economists Robert W. Crandall and Leonard Waverman calculate that doubling the basic service charge would reduce subscriptions by just 0.3 percent.¹⁵⁸ Jerry Hausman's econometric analysis of a federal universal service program to subsidize Internet service for schools and libraries found that every dollar spent on the program cost the economy \$1.05 to \$1.25.¹⁵⁹

¹⁵⁴ Federal Communications Commission, Wireline Competition Bureau, Industry Analysis and Technology Division, *Trends in Telephone Service* (May 2004), at Table 19.1; www.fcc.gov/wcb/stats. Schools and libraries, and rural health care programs operate on a school year rather than on a calendar year. Amounts for those programs in 2002 are for July 1, 2001, to June 30, 2002.

¹⁵⁵ The average monthly charge for local residential service was \$23.38 in 2002. *Id.* at Table 13.1. Federal Communications Commission, *FCC Consumer Facts*; <http://www.fcc.gov/cgb/consumerfacts/accesschrg.html>.

¹⁵⁶ For example, fixed-line services.

¹⁵⁷ Carrier access rates are the regulated charges paid to local phone companies to terminate calls from other networks, such as long-distance.

¹⁵⁸ ROBERT W. CRANDALL AND LEONARD WAVERMAN, WHO PAYS FOR UNIVERSAL SERVICE? WHEN TELEPHONE SUBSIDIES BECOME TRANSPARENT (Brookings Institution Press, 2000), at 106.

¹⁵⁹ Jerry Hausman, *Taxation by Telecommunications Regulation*, NBER WORKING PAPER 6260 (Nov. 1997).

SUMMARY

An impressive number of competitive networks and applications are now emerging to challenge incumbent local exchange carriers. See Table IV-C. Given this rich, rivalrous assortment, policymakers should focus on measures that unleash these promising new alternatives and develop new approaches to funding universal service. Policies are needed to invigorate these opportunities, a question we turn to in Section V.

Table IV-C. Alternative Delivery Platforms in Telecom

Network	Voice	Broadband	Video
Traditional Telephone Plant	182,812,712	9,509,442	*
Cable Network	2,710,000	16,446,322	70,490,000
BSPs	543,000	452,000	1,400,000
Mobile Wireless	158,721,981	*	-
Fixed Wireless	*	139,118	200,000
Satellite	*	228,000	22,862,191
BPL	*	*	-
Fiber to the Premises (FTTP)	*	*	-

Notes & Sources: * = negligible or service in early stages of development. Total traditional telephone lines are as of June 2003, from Federal Communications Commission, Wireline Competition Bureau, Industry Analysis and Technology Division, *Trends in Telephone Service* (May 2004), at Table 8.1. Data for Cable network voice subscribers are from Kagan Research, *Future of Cable Telephony* (2003), at 5. We estimated BSP voice and broadband subscriber data from Comments of Broadband Service Providers Association, MB Docket No. 03-172 (Sept. 11, 2003), at 6. Video subscriber data are from Federal Communications Commission, *Tenth Annual Report in the Matter of Annual Assessment of the Status of Competition in the Market for the Delivery of Video Programming*, MB Docket No. 03-172 (2004), at Appendix B, Table B-1. Satellite broadband subscriber data are from backup tables to Legg Mason, *2003: A Banner Year for Broadband as DSL Gains Momentum* (Mar. 5, 2004). Traditional telephone plant, cable network broadband, and satellite or wireless line data are from Federal Communications Commission, Wireline Competition Bureau, Industry Analysis and Technology Division, *High-Speed Services for Internet Access: Status as of December 31, 2003* (June 2004), at Table 1. We estimated fixed wireless lines by subtracting satellite lines from satellite or wireless lines. Mobile wireless subscribers as of December 2003; http://files.ctia.org/img/survey/2003_endyear/752x571/SEMI-A2.jpg.

V AFFIRMATIVE COMPETITION POLICY

Policymakers need an exit strategy to escape the regulatory morass over network-sharing rules, and such a strategy exists: affirmative competition policy. Unleashing emerging communications platforms will intensify competitive market pressures. Regulators, while investing great time and effort in a failed, eight-year effort to craft complex unbundling rules, have paid scant attention to reforms that would empower these promising emerging platforms. While reducing investment disincentives by scaling back network-sharing obligations for incumbents, policymakers should craft rules that allow widely varying VoIP services to compete freely in the local exchange market. State regulation of VoIP should be preempted, and taxes and access charges should be reduced or abolished. Policymakers should allocate large bandwidth to flexible-use licenses and then auction it to wireless service providers. Satellite slots should be released, with additional spectrum access rights. Policymakers should quickly design BPL spectrum interference rules and eliminate anticompetitive entry barriers facing broadband service providers. Funds to support universal service should come from general tax revenues rather than from hidden charges that hurt competition.

*

DEREGULATORY REFORMS

The network-sharing regulatory program is not working. As wholesale prices for existing network services have become more attractive, the predicted increase in resold lines has materialized. But this resale market appears to displace emerging competitive platforms. Regulators thought that network sharing would be a “stepping stone” for investment in competitive network platforms. Yet the unintended consequence of network sharing is that companies that share networks have become more dependent on regulators to ensure profits. Network sharing has helped push companies such as AT&T, which in 1998 and 1999 was aggressively buying cable assets to use their wires to provide last-mile competition to local exchange carriers, to abandon such efforts in favor of UNE-P.¹⁶⁰

¹⁶⁰ In September 1999, AT&T told the Federal Communications Commission that its acquisition of MediaOne, then the third largest cable operator, would enable it to provide local telephone competition in the only mode that was realistically feasible: facilities-based entry. Resale was characterized as prone to failure because of regulatory complexity and obvious incentives for noncooperation. The acquisition followed the AT&T/TCI merger the year before and gave the new firm cable service to about 35 percent of U.S. homes. AT&T then divested these cable assets in a sale to Comcast in 2002. A. Michael Noll, *The Comcast/AT&T Deal: Light at the End of the Tunnel for AT&T?* (Jan. 11, 2002); <http://www.citi.columbia.edu/amnoll/Comcast-AT&T-z.htm>.

In 1996, FCC chief economist Joseph Farrell noted that the commission was intending not to “*allow* competition, but to *create* competition.”¹⁶¹ But, today, policymakers must focus on *allowing* competition by clearing away barriers preventing the rise of rival telecom networks. And those barriers include key elements of the regime devised to *create competition*, including TELRIC-priced UNE-P.

Emerging technologies are now establishing themselves as viable competitors to legacy networks without assistance from network-sharing rules. Indeed, unbundling and resale are at best irrelevant to the formation of new voice networks offered by cable telephone operators or mobile phone networks. “If you are an incumbent,” FCC Chairman Michael Powell recently noted, “[y]ou ought to be terrified because we are lowering the barriers to offering a service to which you have dedicated a massive infrastructure.”¹⁶² The regulatory effort to establish far-reaching network-sharing mandates has been made unworkable by its ambitiousness and obsolete by the market. Economist Gerald R. Faulhaber concludes:

Can we expect more competition in telephony? Yes, but it is unlikely to come from entrants seeking to replicate existing service offerings, either through local loop unbundling or building out their own voice facilities. Competition is much more likely to come through new technology that offers features and functions not currently available through wireline systems, at a price designed to move product. Can policymakers do anything to help? Yes; reduce uncertainty for new entrants by clarifying regulatory rules regarding these new technologies, and clear out the regulatory underbrush that could stifle competition, such as limited wireless bandwidth and restrictive local practices for cable competition approvals.¹⁶³

Regulators should both strip away barriers to new network formation and simultaneously end overregulation of incumbent telecommunications networks. This dual strategy will create a marketplace for American consumers in which multiple platforms offer innovative choices and superior prices for data and video as well as voice service. “In some ways the battlefield has already moved way beyond skirmishes over [wholesale] pricing,” said Billy Jack Gregg, a consumer advocate in West Virginia. “It really is now the question of ... who has broadband access to the network.”¹⁶⁴

Competing wireless and cable networks are already in place to challenge legacy phone networks, while rapidly expanding broadband connections—with VoIP coming of age—result in additional competitive pathways. Put simply: *broadband access* + *an*

¹⁶¹ Joseph Farrell, *Creating Local Competition*, 49 FED. COMM. L.J. 201 (1996); <http://www.law.indiana.edu/fclj/pubs/v49/no1/farrell.html>.

¹⁶² FCC Chairman Michael Powell, quoted in Peter Thal Larsen and Paul Taylor, *FCC Chief in VoIP Warning*, FIN. TIMES (May 5, 2004), at 28.

¹⁶³ Gerald R. Faulhaber, *Policy-Induced Competition: The Telecommunications Experiments*, 15 INFO. ECON. & POL’Y. 73 (2003), at 96–97.

¹⁶⁴ *Telecom Deregulation May Raise Bills—But How Much?* DALLAS MORNING NEWS (June 10, 2004), at 10.

Internet application = last-mile voice competition. This fundamentally alters market dynamics. As an article in the *e-Commerce Times* recently noted:

This market has changed profoundly since the Telecom Act was established eight years ago. The regular phone had few alternatives. Cell phones were still in their infancy. The scratchy, analog cell service that most people used was too expensive and unreliable to serve as a primary connection. Voice over the Internet protocol (VoIP) was even worse, a high-tech ham radio for geeks. It sounded just dreadful.

All that has changed now. Wireless and VoIP have come into their own and are more than just alternatives to the regular phone. Traditional phone companies like Verizon (VZ), SBC, BellSouth (BLS) and AT&T are redefining themselves around these new technologies, lest they get left behind.¹⁶⁵

POLICIES FOR EMERGING COMPETITIVE PLATFORMS

To promote the creation of competitive voice, video, and data networks, to encourage new investment, and to speed the deployment of innovative technologies, policymakers must implement major reforms for each of the emerging telecommunications platforms.

Wireless Networks

The robust competition among six national wireless networks has reduced prices to an average of just over 10¢ per minute. Yet U.S. wireless carriers face substantial constraints imposed by the artificial scarcity of spectrum, a result of FCC spectrum allocation decisions allowing carriers to use only about 170 MHz of bandwidth.¹⁶⁶ This is far below the total cellular allocations in such countries as Germany, the Netherlands, and the United Kingdom, whose wireless carriers are licensed to use more than 300 MHz. Since the FCC allowed 120 MHz of spectrum for licensed PCS service in 1994,¹⁶⁷ essentially no new bandwidth has been made available for the industry to utilize. This inactivity has come during a decade in which considerable new allotments were made for third-generation services in advanced economies throughout the world.

¹⁶⁵ Steve Rosenbush, *Finally, A Free Market for Telecom*, BUS. WEEK ONLINE (June 10, 2004).

¹⁶⁶ While 189 MHz are formally available for use nationwide, much less bandwidth is utilized, given the ongoing distribution of PCS C-block licenses first auctioned in 1996 but caught up in bankruptcy proceedings. Handicapping competitive bidding to favor small businesses and rural telephone companies resulted in this policy debacle. See Thomas W. Hazlett and Babette Boliek, *Use of Designated Entity Preferences in Assigning Wireless Licenses*, 51 FED. COMM. L. J. 639 (May 1999).

¹⁶⁷ Federal Communications Commission, *In the Matter of Amendment of the Commission's Rules to Establish New Personal Communications Services*, 94-144 F.C.C. ¶ 10 (1994).

While additional bandwidth will return large social dividends and while operators are prepared to spend billions of dollars for new licenses,¹⁶⁸ U.S. public policy has been lethargic. In November 1999, an FCC Spectrum Report committed the commission to licensing an additional 183 MHz of spectrum with flexible-use rights and listed the bands to be licensed. To date, the spectrum has not been reallocated to new, productive uses.¹⁶⁹ Part of the reason is *intentional* delay. In March 2001, the Bush Administration announced that a 700 MHz license auction would occur soon but then delayed the auction until September 2004 on the expectation that the delay would result in higher bids. Such an approach is penny wise and pound foolish.

Additional bandwidth would create lower prices for wireless services and billions of dollars in consumer savings. It would result in greater productive efficiency for U.S. businesses and intense competition for “last mile” services. These extend beyond voice, to high-speed data and, eventually, video. Airwaves that are now little used could be placed into far more productive use by cellular networks, which could make cell phone use near ubiquitous. The growth of usage would spark additional applications and make cell phones a more compelling substitute for fixed-line service.

This trend is already observed in global markets. In many developing countries, wireless has displaced wireline as the platform of choice. And in developed countries incumbent telecommunications providers face increasingly fierce competition, in some cases losing *more than one-half* of wireline traffic to wireless entrants.

Value of access to new spectrum. A recent econometric analysis of wireless markets in twenty-nine countries showed that the relationship between spectrum allocation and retail prices was strongly negative. Countries with more allocated spectrum enjoyed substantially lower prices for mobile phone service, and the difference is statistically significant.¹⁷⁰ Using this model, one can estimate how much U.S. cellular rates would decline were more bandwidth available to operators. Simulations show that the average price per minute of use, estimated in the model to be about 11¢ in 2003, would fall to about 8.5¢ if an additional 80 MHz were allocated and to under 6¢ per minute were 200 MHz made available. Demand is found to be elastic, meaning that the minutes of use of mobile telephone service would rise by a larger percentage increase than the percentage decrease in prices. See Table V-A.

These changes would produce huge social benefits on their own: some \$32 billion in additional consumer surplus (the increase in consumer well-being over and above what

¹⁶⁸ This was demonstrated in January 2001, when an auction for licenses that allocated 30 MHz of radio spectrum in the PCS C-block and 10 MHz in the F-block bands drew aggregate bids of about \$16 billion. The auction became moot when a federal court ruled that the licenses auctioned by the FCC actually belonged to NextWave, a firm reorganized through bankruptcy. Caron Carlson, *NextWave, FCC Settle Wireless Spectrum Battle; Bringing the Eight-Year Feud to a Resolution, NextWave Will Keep 300 MHz of Spectrum While Returning Most of Its Licenses to the FCC for Reauctioning to Other Wireless Carriers*, EWEEK (Apr. 21, 2004).

¹⁶⁹ Thomas W. Hazlett, *Selling the Ether*, MILKEN INST. REV. (Fourth Quarter 2003).

¹⁷⁰ Thomas W. Hazlett and Roberto Muñoz, *A Welfare Analysis of Spectrum Allocation Policies*, Manhattan Institute for Policy Research (June 10, 2004).

the service costs them) is generated per year with another 80 MHz allocated to wireless telephony. In addition, local telephone competition becomes more robust as cellular prices fall.

Table V-A. Annual Consumer Gains from Increased Availability of Mobile Phone Spectrum

Variable	80 MHz			140 MHz		200 MHz	
	Initial Value	Final Value	% Change	Final Value	% Change	Final Value	% Change
Average Price/Minute	0.112¢	0.084¢	-25.00	0.069¢	-38.39	0.056¢	-50.00
Min. of Use/Month (millions)	78,340	115,098	46.92	135,763	73.30	153,038	95.35
Change in Consumer Surplus (\$ millions)		31,850		55,072		77,419	

Notes & Sources: Results are estimates from the model calibrated in Thomas W. Hazlett and Roberto Muñoz, *A Welfare Analysis of Spectrum Allocation Policies*, Manhattan Institute for Policy Research (June 10, 2004). See also Thomas W. Hazlett, *Exit Strategies for the Digital Television Transition*, testimony before the U.S. Senate Commerce Committee (June 9, 2004).

The value of licenses sold at auction reflects only a small part of the gains associated with additional spectrum allocations. That is so because firms bidding for licenses price their bids on the basis of expected profits, which are likely to be at least an order of magnitude *less* than the consumer surplus generated by additional spectrum. Moreover, the more bandwidth mobile competitors can use, the less a given license will be worth at auction, precisely because competitive pressures intensify as additional capacity is available to service providers.

Nonetheless, firms are still willing to pay substantial sums for the licenses being offered today in secondary markets. Bids for licenses are estimated at about \$1.65 per MHz per person (in the area covered by the license). Hence, a license with flexible-use rights to 10 MHz of nationwide spectrum has an estimated value of about \$5 billion.¹⁷¹

Availability of additional spectrum. While broad liberalization of spectrum use would accomplish the goals sought in solving the “last mile” competition problem, we focus on the immediate task at hand.¹⁷² If the existing “command and control” apparatus could succeed in making additional spectrum available for use on a licensed, flexible-use basis, the market could then decide how best to use this bandwidth. This largely follows the policy now in place for commercial mobile radio services (CMRS), which include cellular, PCS, and SMR licensees, who are given wide latitude over what services to provide, what technologies to deploy, and what business model to select (such as advertising-supported vs. fee-based services).

¹⁷¹ This is also the amount that Verizon Wireless recently offered to pay the FCC for a 10 MHz license allocated 1.9 GHz spectrum. Donny Jackson, *Verizon Wireless Bid Pledge Complicates 800MHz Plan*, TELEPHONY.ONLINE (Apr. 19, 2004).

¹⁷² In February 2001, a group of thirty-seven prominent policy economists petitioned the FCC to restrict its regulation of radio spectrum to policing interference and assisting antitrust authorities in promoting competitive markets. Federal Communications Commission, *In the Matter of Promoting Efficient Use of Spectrum through Elimination of Barriers to the Development of Secondary Markets*, No. 00-230 (2001). On the specifics of liberalizing radio spectrum use, see Thomas W. Hazlett, *Liberalizing Radio Spectrum Allocation*, 27 TELECOMM. POL’Y 485 (2003).

Spectrum is available in a number of bands where the opportunity costs of reallocation are low to nonexistent. The most efficient way to convert a band from one use to another is via the device known as an “overlay right.” An overlay right (used successfully with PCS) gives the new licensee the right to use defined bandwidth, subject to noninterference with existing users. The licensee can either engineer new systems around the obstruction or negotiate to move the grandfathered rights holder to alternative bands or communications links (such as to fiber-optic cables).

Fortunately, the FCC has periodically conducted surveys to identify from where bandwidth could most usefully be reallocated. We have discussed the FCC’s 1999 survey that identified 183 MHz. In 2002, an excellent research paper by FCC senior policy experts Evan Kwerel and John Williams identified 438 MHz as available for immediate reallocation to flexible-use licenses.¹⁷³ These frequencies are all located below 3 GHz, making them ideally suited for mobile phone use, wireless local loops, and high-speed Internet access. We outline the various reallocations already “on the table” in Table V-B.

Table V-B. Bands Available for Reallocation to Wireless Telephony

Band	Current Allocation	Bandwidth (Part of 438 MHz)	Status
VHF/UHF	Broadcast TV	402 MHz (78 MHz)	Mostly unused; tied up in digital TV transition.
2.5 GHz (MMDS/ITFS)	Microwave pay TV; instructional TV	190MHz (190 MHz)	Conflicting rules have reduced the value of licenses by over 90 percent (compared with PCS licenses using nearby band); a consortium of licensees have recommended new rules to allow third-generation use, but political concerns have blocked a decision since 2002.
1.7 GHz	DoD	90 MHz (45 MHz)	Transferred from government; scheduled to be auctioned.
2 GHz MSS	Mobile satellite service	70 MHz (70 MHz)	Currently unused.
2 GHz General and Fixed Mobile Band	Various	55 MHz (55 MHz)	Transferred from government; scheduled to be auctioned.

Source: Evan Kwerel and John Williams, *A Proposal for a Rapid Transition to Market Allocation of Spectrum*, FEDERAL COMMUNICATIONS COMMISSION OFFICE OF PLANS AND POLICIES WORKING PAPER No. 38 (Nov. 2002).

Spectrum policy not only can fuel the growth of mobile phone voice networks; it also can provide the “third way” for broadband to be supplied to homes or small businesses. Fixed wireless broadband operators are operating in various countries and, in a limited way, in the United States. Fixed wireless offers high-speed network access that rivals the service provided by cable modem and DSL service providers. A brief summary is provided in Table V-C. Spectrum access for fixed wireless is, of course, crucial. So

¹⁷³ Evan Kwerel and John Williams, *A Proposal for a Rapid Transition to Market Allocation of Spectrum*, FEDERAL COMMUNICATIONS COMMISSION OFFICE OF PLANS AND POLICIES WORKING PAPER No. 38 (Nov. 2002).

long as regulators leave wireless operators starved for bandwidth, fewer services will be provided, and quality will suffer.¹⁷⁴

Flexible use rights to the 438 MHz of spectrum imminently suitable for quick reallocation could be issued at auction; indeed, incumbents with vested rights in the relevant bands could also enter the license auction to sell these dispersed rights to new entrants. FCC analysts describe this two part auction as a “big bang.” On the basis of the estimated consumer benefits generated by newly available spectrum, the auction would provide sharp stimulus to the U.S. economy. More important, this competitive market segment could introduce multiple networks per market, in much the same way that mobile telephony now has six robust competitors. Hence, fears that market power concerns would limit broadband to a duopoly¹⁷⁵ would dissipate.

Table V-C. Competing High-Speed Wireless Internet Access Technology

Operator	Technology Provider	Technology	Maximum / Average Speed	Deployments
Nextel	Flarion	FLASH-OFDM	3 Mbps	North Carolina
Vodafone	ArrayComm	iBurst	1 Mbps	Australia
Various	IP Wireless	TDD CDMA	6 Mbps	United States, Australia, Germany, Malaysia, New Zealand, Portugal, South Africa, United Kingdom
Verizon Wireless	Qualcomm	EV-DO	300-500 Kbps	United States, Korea
Clearwire	NextNet	Proprietary	1.5 Mbps	N/A

Sources: Federal Communications Commission, Wireline Competition Bureau, Industry Analysis and Technology Division, *Trends in Telephone Service* (May 2004). Michael Doherty, *The US Moves Towards Wireless Broadband*, OVUM (Jul. 2004), at 11-12. Dan Richman, *McCaw Leaps Back into Wireless*, THE SEATTLE POST INTELLIGENCER (Jun. 3, 2004). Eric Lin, *Verizon Will Expand EV-DO Nationwide* (Jan. 9, 2004); <http://www.thefeature.com/article?articleid=100308>; http://www.iburst.com/au/site/iburst/iburst_features.php; <http://www.ipwireless.com/company/>; <http://www.dailywireless.org/modules.php?name=News&file=print&sid=2628>; http://www.flarion.com/products/flash_ofdm.asp; <http://www.msnbc.msn.com/id/5124765/>.

*Cable Phone Competition*¹⁷⁶

Cable telephony is the dog that did not bark. Why have cable operators, who have networks in place available to over 95 percent of U.S. households, been reluctant to invest the incremental sums necessary to offer telephone service to these homes? The experience of Cox Communications, the one large operator that has aggressively entered the telephone market early, shows that buildouts are possible; Cox reports that telephone buildouts are financially viable, as well.¹⁷⁷ Many analysts believe that regulatory

¹⁷⁴ Scott Wooley, *Jammed!* FORBES (Jan. 7, 2002); http://www.forbes.com/forbes/2002/0107/130_print.html.

¹⁷⁵ Congressional Budget Office, *Does the Residential Broadband Market Need Fixing?* (Dec. 2003).

¹⁷⁶ Robert W. Hahn helped write this part of the report, which draws from earlier work by Robert W. Crandall, Robert W. Hahn, Robert E. Litan, and Scott Wallsten, *Why the Government Should Not Regulate Internet Telephony*, AEI-BROOKINGS JOINT CENTER FOR REGULATORY STUDIES REGULATORY ANALYSIS 03-12 (Dec. 2003).

¹⁷⁷ George Winslow, *“It’s the Bundle Baby”: Cox’s Rooney Is One Marketing Pro Who’s Got It All Together*, BROADCASTING & CABLE (May 3, 2004).

uncertainty over VoIP rules has induced many systems to delay entry into new markets and that the threat of UNE-P resale has undermined investment incentives.¹⁷⁸ Policymakers should address both concerns.

Riding on the network. Most of the cost of traditional telephone service is in the local network's delivery of the call. Once a call is transmitted from a local connection to a long-distance carrier, it costs only a small fraction of a cent per minute to deliver it to a local telephone company somewhere else, even if the call travels halfway around the world. If consumers can avoid the costs of traversing a local company's networks, the cost of the call falls dramatically (in percentage terms).¹⁷⁹ VoIP achieves this by providing its service on a customer's existing broadband connection. The broadband connection incurs all the physical network costs—VoIP rides on the infrastructure.

A wireless or traditional fixed-line package of unlimited local and long-distance calling may cost \$50 per month,¹⁸⁰ but VoIP can be delivered at a fraction of this cost, perhaps less than \$20 per month.¹⁸¹ Therefore, if the companies offering this service identify households with high-speed Internet connections and market this new service at a customer acquisition cost of, say, \$200 or less, they can profitably offer the service at \$30 or \$35 per month, assuming a mean subscriber term of two years or more. How consumers will ultimately respond to VoIP is yet unknown, but it is safe to say that traditional telephone companies and their regulators are concerned.

Moreover, because VoIP comes in many forms, consumers would be able to choose from a number of different technologies as well as different levels of service quality. Some services require both ends of the phone call to connect through a PC; this is the cheapest form of VoIP and is apt to deliver the lowest-quality connection. On the other side, cable companies are investing substantial sums in VoIP networks that dedicate cable system bandwidth for the exclusive use of the system (avoiding local traffic congestion), use their own high-performance switches (to route traffic without Internet backbone delays), and are equipped with back-up power sources (meaning that phones will work even when household electricity goes off). Compared with VoIP between PCs,

¹⁷⁸ It may also be true that operators have waited for VoIP technologies to mature, so waiting to invest has option value. Cox Communications argued against this analysis in its white paper, *Cox Communications' Strategic Approach to Maximizing the Business of Cable Telephony* (Feb. 2003).

¹⁷⁹ The price of connecting calls to local networks is regulated, but it has fallen dramatically in recent years except for intrastate long-distance calls, whose prices are kept artificially high by state regulators. The connection charges (originating and terminating) for an interstate call are now about 0.44¢ per minute for the large Bell companies. Although these charges may seem low, they can contribute substantially to the cost of telephone services that deliver between 500 and 1,250 minutes per month on average. See Federal Communications Commission, Wireline Competition Bureau, Industry Analysis and Technology Division, *Trends in Telephone Service* (May 2004), at Table 1.4; <http://www.fcc.gov/wcb/stats>.

¹⁸⁰ Each of the Web sites for SBC, AT&T, MCI, and Verizon offers a package of unlimited local and long-distance calling for \$50 per month or less.

¹⁸¹ See Table IV-B. The principal costs are local termination (to subscribers without broadband connections), local collocation costs (placing switches and routers in network-routing points), local telephone numbers, and long-distance transmission services.

this service is relatively expensive to provide but offers a much closer substitute to the fixed-line phone service most customers have grown accustomed to using.

Having a larger menu of diverse service choices would be good for consumers, who have different levels of demand and value price-performance tradeoffs differently. Consumers could grab bargains in situations where quality of service was less important or pay extra where reliability and signal clarity are absolutely critical.

State regulation. State regulators have expressed an interest in licensing and regulating VoIP providers much as they license telephone companies. Minnesota has already tried to launch such an effort.¹⁸² But Internet services are provided regionally, nationally, or globally. Disparate state regulatory requirements, taxes, and fees on those services could prove highly disruptive.

Uniform national policies are particularly important when networks are created that cross state borders, because the costs incurred are felt far beyond the boundaries of the state that imposes regulations and, in turn, are not of great interest to state regulators. This creates a classic externality problem, where costs and benefits are not properly accounted for, and leads to economic irrationality.¹⁸³ Hence, Stephen Greenberg, CEO of Net2Phone, a prominent VoIP provider, states: “The worst case scenario would be for 50 state PUCs [public utility commissions] to take different positions, with one set of standards in Maine and another in Florida. If the [FCC] preempts that and promulgates rules for the entire industry, you get uniformity.”¹⁸⁴

State and local regulation of VoIP should be preempted. FCC Chairman Michael Powell has declared, “I don’t know whether it’s Internet or telephone, but I know it’s not local.”¹⁸⁵ He adds that the FCC, not the states or localities, is the principal regulatory authority for VoIP services and should be the “first in line to set the initial regulatory environment” for VoIP services. Neither the states nor localities have the appropriate incentives, and there is a real danger that states and localities could implement regulations that would hurt consumers.¹⁸⁶

Federal regulation. At the federal level, a critical issue for the FCC is whether providers of different kinds of VoIP should be required to pay access charges—payments made to local exchange carriers delivering calls to the end-user. For years, access

¹⁸² *Court Halts Minnesota’s VoIP Regulation Plans*, 13 BROADBAND BUS. REP. 21 (Oct. 21, 2003). Thomas Hazlett, *Good Politics, Bad Policy*, FIN. TIMES (Nov. 5, 2003).

¹⁸³ In a related market, see the analysis in Thomas W. Hazlett, *Is Federal Preemption Efficient in Cellular Phone Regulation?* 56 FED. COMM. L. J. 155 (2003).

¹⁸⁴ Eric J. Savitz, *Talk Gets Cheap*, BARRON’S ONLINE (May 24, 2004). See also Kevin Werbach, *A Long, Hot Summer for VoIP?* CNET NEWS.COM (June 16, 2004); http://news.com.com/A+long%2C+hot+summer+for+VoIP%3F2010-7352_3-5235523.html.

¹⁸⁵ *FCC Chmn. Powell Said It Was Necessary To “Rethink” the Social Goal of Universal Service When Applying It to Voice over Internet Protocol (VoIP) Services*, COMM. DAILY (Dec. 9, 2003).

¹⁸⁶ Robert W. Hahn, Anne Layne-Farrar, and Peter Passell, *Federalism and Regulation: An Overview*, REGULATION (July 2003). This prohibition of state and local regulation should fall under the competition policy enacted in the Telecommunications Act of 1996, which outlawed legal barriers to entry imposed by the states.

charges have been set substantially above costs to generate an implicit subsidy fund that compensates local exchanges for universal service obligations (including the obligation to charge uniform prices, even in high-cost parts of their service territory).

Consider two recent cases before the FCC. In the case of Pulver, a VoIP start-up, the FCC ruled that the firm's technology was an information service and therefore exempt from access charges.¹⁸⁷ In the case of AT&T, the FCC ruled that its VoIP technology was a telecommunications service and therefore subject to access charges. The disparate outcomes related to the fact that the Pulver VoIP service is "just" an application that looks like a computer program: two users with Pulver's software can talk to each other using PCs connected to broadband connections. Conversely, AT&T offered standard phone calls that used an IP link at some point in transit.

The three choices for an access-charge policy for VoIP are: (1) that access charges apply to some politically determined group of VoIP technologies; (2) that they are not applied to VoIP at all; or (3) that they are to be negotiated in the marketplace.

If some VoIP technologies had to pay access charges (the first choice), those applications would be less attractive to users. That helps incumbents, regulators, and exempt VoIP technologies but defeats the proconsumer goal of advancing competition. This choice would also trigger endless rulemakings to consider and reconsider access-charge exemptions.

Eliminating access charges (the second choice) would unleash competition but would create political turmoil by removing a major source of subsidy funding for universal service programs. But if subsidies were to be financed through a more efficient set of taxes (e.g., a tax on phone numbers, which would have a less-distorting effect on economic activity), then consumer welfare would be substantially improved.

Negotiated access charges (the third choice) would mean that a VoIP provider like Vonage, which now negotiates long-distance transport for its subscribers' phone calls as a substitute for negotiating local access,¹⁸⁸ would also negotiate local access with last-mile providers to deliver phone calls to people not using broadband connections. Because these local networks interconnect with multiple outside networks today, including those owned by competitors, such negotiated access solutions appear feasible.

In a sense, the dam has already been breached. The FCC has decided that PC-to-PC phone calls bypass the telephone system and should not incur access charges (as per the Pulver decision). But with the rapid march of technology, phone service will converge to PC plug-ins for an increasing proportion of phone calls, particularly given

¹⁸⁷ Federal Communications Commission, *In the Matter of Petition for Declaratory Ruling That pulver.com's Free World Dialup Is Neither Telecommunications Nor a Telecommunications Service*, Memorandum Opinion and Order, WC Docket No. 03-45 (2004).

¹⁸⁸ All of Vonage's calls enter the public telephone network as if they were long-distance calls, even if they originated locally.

that heavy users of voice telephone service will have the most intense demand to escape access charges.

Note that major business enterprises are already converting corporate networks to all-IP, given the extensive use of high-speed networks and the advantages (including elimination of taxes such as access charges) of using data links for voice service. Over not too much time, substitution will make the regulation-imposed access fee irrelevant. Rather than distort economic choices and drag out the inevitable, it would be far preferable to replace access charges with an alternative funding source. This could be done in tandem with an economic appraisal of universal service subsidies, which is long overdue.

With regard to other possible regulatory mandates, we conclude that VoIP sellers should not be required to provide services beyond *possibly* “911” (which identifies a caller’s location in connecting to local public-safety authorities, a more challenging task for Internet-based services that can be delivered at any network access point) or services required by the Communications Assistance for Law Enforcement Act,¹⁸⁹ access that lawmakers may view as high-value “public goods.”¹⁹⁰ If, on the other hand, lawmakers determine that these services are not essential, providers will still respond to market forces by allowing the user to decide which ones are worth purchasing.¹⁹¹

This brief analysis of VoIP yields four conclusions. First, VoIP is emerging as a genuine competitor to traditional landline service; second, regulators may have a large impact on VoIP development; third, little economic rationale exists for regulating VoIP; and fourth, the worst outcome would be patchwork regulation, state by state.

Broadband Service Provider Entry

One of the most effective forms of competitive telephone service has occurred via competition among *cable* operators. The entry by head-to-head cable TV rivals, formerly called overbuilders and now referred to as broadband service providers,¹⁹² has proven to be highly effective in lowering prices; video subscriptions are found to be about 15 percent less expensive in such markets.¹⁹³

¹⁸⁹ The Communications Assistance for Law Enforcement Act (CALEA) requires covered telecommunications providers to help law enforcement agencies to tap phones and provide other information about customers. The FCC recently voted to impose CALEA requirements on VoIP providers. Declan McCullough and Ben Charny, *Feds Back Wiretap Rules for Internet*, CNET NEWS.COM (Aug. 4, 2004); http://news.com.com/Feds+back+wiretap+rules+for+Internet/2100-7352_3-5296417.html.

¹⁹⁰ Other examples include services related to homeland security and services for the disabled.

¹⁹¹ Market demand would seem to work much better in achieving the optimal amount of “911” service, where the user tends to gain directly from access to emergency services, than with CALEA mandates, which provide benefits dispersed among the population generally.

¹⁹² Federal Communications Commission, *Tenth Annual Report in the Matter of Annual Assessment of the Status of Competition in the Market for the Delivery of Video Programming*, MB Docket No. 03-172 (2004), ¶¶ 78–84.

¹⁹³ General Accounting Office, *Issues Related to Competition and Subscriber Rates in the Cable Television Industry*, GAO-04-8 (Oct. 2003).

But the competition extends beyond video services, because BSP entrants inevitably seek to offer a broad range of services. This includes not only the standard “triple play” of voice, video, and high-speed data, but additional features—for instance, supplying faster broadband access that accommodates video-streaming applications better than do existing systems.¹⁹⁴ See Table V-D. BSP competition not only brings a fixed-line phone rival into the market, but also often motivates the incumbent cable operator to offer voice service and effectively gives consumers multiple choices for local fixed-line service.

Table V-D. Two Major Broadband Service Providers

Operator	Main Markets	Homes Passed	Video	Subscribers	
				Broadband	Telephone
RCN	Northeast United States, Chicago, California	1,400,000	370,187	174,898	253,132
Knology	Georgia, Alabama, Florida, South Carolina, Tennessee, Kentucky	935,640	183,783	73,482	118,872

Sources: Federal Communications Commission, *Tenth Annual Report in the Matter of Annual Assessment of the Status of Competition in the Market for Delivery of Video Programming*, MB Docket No. 03-172 (released Jan. 28, 2004), at 57; Kagan World Media, *Future of Cable Telephony* (Oct. 2003), at 122, 124; company SEC 10-K filings.

BSP entry requires substantial investment, and financial markets have severely constrained recent build outs. A more favorable regulatory climate could help expand this very successful market experiment. While BSPs pass only about 6 percent of U.S. households,¹⁹⁵ regulators should be driven by the highly proconsumer effect of this entry and allow the competitive frontier to grow.

BSPs have petitioned regulators on a range of issues:

- Rules limiting actions of incumbent cable operators. These include an expansion of program-access rules in place under the Cable Television Consumer Protection and Competition Act of 1992 (striking down certain types of exclusive agreements between cable program networks and cable operators), rules limiting price discrimination to respond to a new entrant (it is quite common for cable systems to lower prices dramatically just on the specific streets that a rival can service), and sanctions against malicious conduct (for instance, splicing cable lines to disrupt service); and,
- Limitations on burdens imposed by cable TV franchises issued by local governments. Franchises typically are issued only after long delays and “needs

¹⁹⁴ Jeff Baumgartner, *One-Upmanship: RCN Offers 7 Mbps Cable Modem Service*, CED MAG. (July 27, 2004); <http://www.cedmagazine.com/cedailydirect/2004/0704/cedaily040727.htm>. See also Thomas W. Hazlett and George Bittlingmayer, *The Political Economy of Cable “Open Access,”* STAN. TECH. L. REV. (2003), at Table 1.

¹⁹⁵ See data and discussion in Section IV.

assessments” and often include universal service requirements. These requirements are proposed by incumbents who argue that it is unfair for an entrant to build only in profitable areas. But an entrant, constrained by competition to charge lower prices and splitting market share with a rival, cannot fund the same promises. Governments may also require the applicant to pay subsidies (for example, for local programming studios) over and above the 5 percent-of-revenues franchise fee (capped by the Cable Communications Policy Act of 1984). These burdens bite deeply into a competitor’s business plan.

The first set of concerns relates to actions that may deter entry. These issues involve detailed analysis by regulators because many of the actions taken to block competition in one situation can advance consumer interests in another. For instance, an incumbent operator may arrange an exclusive program deal to deny a new rival the ability to offer customers popular programs and will thereby reduce prospects for competition. On the other hand, a potential entrant may see an opportunity to bring local subscribers an important program channel that the incumbent has ignored and desires an exclusive agreement with the video network to help get its new system established (by, in part, offering unique programming). Antitrust policy addresses these issues, despite constituting a highly imperfect solution.¹⁹⁶

An unambiguous policy solution presents itself for the second set of issues. Policymakers should impose federal rules limiting state and local franchise authorities, much as such agencies were preempted from enforcing franchise telephone monopolies in the Telecommunications Act of 1996. These rules should limit the regulatory burdens placed on new entrants. In short, the right to compete should be established. Franchise obligations that tend to limit competition¹⁹⁷ should be removed. In addition, standards for obtaining permits (including those involving the installation of power plants for cable telephone systems built by incumbents or entrants) and for utility pole attachments should be illegal if they serve to deter efficient entry. Municipalities should be able to impose public safety and bonding requirements (to mitigate public disruption), but cities and states should not impose additional obligations on entrants or institute regulations that (via cross-subsidies) require new competitors to fund public services.

Satellite Entry

Stimulating competitive rivalry in any of the “triple play” services has the potential to advance competition across the board. So suggests the history of satellite TV entry, which drove cable operators to add capacity to enter broadband markets and triggered telephone companies’ defensive DSL investments. Ultimately, the broadband race sparked by satellite TV entry paved the way for mass-market VoIP, which now looms as a bona fide “last mile” alternative to traditional phone networks.

¹⁹⁶ See Thomas W. Hazlett, *Predation in Local Cable TV Markets*, ANTITRUST BULL. 609 (Fall 1995).

¹⁹⁷ Such as universal service obligations, discussed above. In general, see Thomas W. Hazlett, *Duopolistic Competition in Cable Television: Implications for Public Policy*, 7 YALE J. ON REG. 65 (Winter 1990).

More satellite competition is feasible, and the capacity of satellite operators could well be enlarged. Again, critical regulatory barriers stand in the way. The FCC must make additional orbital slots and spectrum-use rights available to the market. Doing so would potentially intensify competition between cable and telephone companies and between rival phone carriers.

In 2002, a subsidiary of the largest European platform for satellite TV service, SES AMERICOM, filed an application with the FCC to utilize additional orbital slots and to obtain licenses to use the associated bandwidth on the premise that such slots could be squeezed in more tightly.¹⁹⁸ Currently, the government regulations require that satellites be separated from each other by nine degrees; SES AMERICOM argues that 4.5 degree spacing is sufficient, doubling the number of possible spaces for communications satellites. The company had planned to offer a new video platform for content providers to offer programming to households.

In the face of regulatory barriers, SES AMERICOM gave up its competitive quest and instead struck a deal to partner with incumbent DBS provider EchoStar. Now, both companies have pending applications for additional orbital slots.¹⁹⁹

Even without a new competitor, the use of additional satellites could stimulate competition in both the video and telephony markets. Satellite expansion in the video space would motivate cable operators to respond to competition with expanded systems and packages. This has already driven them to offer telephony to retain customers. Cox pointedly notes that it loses far fewer customers to satellite systems in markets where it provides telephony: “DBS penetration in all of Cox’s markets averages just 11 percent. Cox is proud of holding off DBS better than companies like Comcast and Charter do.”²⁰⁰ It attributes its competitive success, in large part, to its bundling of high-quality telephone service.

Rapid settlement of the SES AMERICOM petition filed in April 2002 and the EchoStar petition filed earlier in 2004 could help stimulate this rivalry.

Cable Modems and DSL

Either platform has been regulated, or threatened with regulation, on an “open access” basis. But the market’s verdict is clear: deployment of either platform has been strongest where access mandates have been weakest. Vertical integration has proven valuable for the coordination of service provision between cable/broadband and telephony/DSL, and investors creating new services have been well served by rules that allow such coordination. Given the closed nature of a cable modem network, it is revealing that cable modems enjoy a clear advantage over DSL by the existence of open

¹⁹⁸ Paige Albiniak and Ken Kerschbaumer, *Is DBS Competition in the Offing? SES Americom Says It Is Ready to Enter Market, but First It Must Persuade the FCC to Short-Space Satellites*, BROADCASTING & CABLE (Apr. 29, 2002).

¹⁹⁹ *FCC Ponders DBS Satellite Spacing Issues*, SKYREPORT (Dec. 18, 2003).

²⁰⁰ John M. Higgins, *Cox Cable Plays Defense and Offense*, BROADCASTING & CABLE (Feb. 2, 2004).

standards in the production of cable modems.²⁰¹ With strong incentives for platform owners to promote efficiencies in the equipment that makes up their networks, cable operators have invested to establish highly competitive equipment markets using nonproprietary standards.

Policymakers should declare that all broadband services, including cable modem service and DSL,²⁰² are “information services” not subject to telecommunications regulation. While this has tentatively been done for cable modem service, policymakers should decisively close the door to broadband regulation generally. This will reduce market uncertainty and improve deployment. With DSL service, the case is even stronger because market share is much less than cable modem service. Only a small fraction of DSL service is provided by an operator other than the local exchange carrier (via an unbundled local loop),²⁰³ and alternative means for independent ISPs to provide DSL over incumbent carrier lines could be negotiated with phone companies or local cable operators in the absence of “open access” mandates. We also propose that, for a limited period of time, Internet service providers be able to provide broadband services by using leased phone loops under TSR pricing rules.

Other Competitive Platforms

Other public policies should be enacted to encourage the emergence of rival telecommunications networks. Promising technologies include broadband over power lines, satellite voice, and satellite broadband. Policymakers should strip away existing or potential regulatory impediments, so that investors have every incentive to fund the risky ventures that may make telecommunications markets more competitive.

REMOVING ECONOMIC DISTORTIONS

The development of competitive telecommunications platforms affords policymakers the opportunity to change the rules. Indeed, some analysts question whether regulation is needed to keep the rates for services down:

The telecommunications industry is already so roiled by technology-induced tumult, including the proliferation of cell phones and Voice over

²⁰¹ An open standard offers a uniform technology that multiple rivals may produce and differs from proprietary technologies that belong to particular firms. In cable modem service, Cable Labs (a cooperative technical venture sponsored by cable operators) coordinates creation of these standard technologies and then certifies that equipment suppliers produce units that meet the specifications. See George Bittlingmayer and Thomas W. Hazlett, “Open Access”: *The Ideal and the Real*, 26 TELECOMM. POL’Y 295 (2002).

²⁰² Emerging technologies are important to include. “Regulatory uncertainty over the classification of broadband services could affect broadband over power line (BPL) operations as well, according to industry officials.” Dinesh Kumar, *Municipal Utilities Sluggish in Broadband over Power Line Ventures*, COMM. DAILY (June 14, 2004), at 8.

²⁰³ Less than 5 percent of residential DSL service was provided by a carrier other than the local exchange operator. See Congressional Budget Office, *Does the Residential Broadband Market Need Fixing?* (Dec. 2003), at 19.

Internet Protocol, that some analysts think regulation is hardly needed to keep prices down.²⁰⁴

To strategically position the U.S. telecommunications sector in the global economy, we recommend reforms that require regulatory or legislative action at either the state or federal level. Our reforms fall into two categories: ending policies that discriminate among networks and ending price distortions (including those caused by current measures to support universal service). Our reform proposals will benefit all consumers and generate enormous economic gains.

Eliminating the “Theoretical” Pricing of Network Access

The emergence of rival networks undermines the rationale for network-sharing rules. Policymakers should seize the competitive opportunity now available, as well as the deregulatory option that the legal stalemate over mandatory network-sharing rules has produced.²⁰⁵ Major regulatory changes to network-sharing rules are likely to occur soon, as the D.C. Circuit ruling earlier in 2004 has rendered the unbundling regime defunct; as of June 15, 2004, the basic framework created by the FCC for determining how incumbents’ networks must accommodate new rivals seeking to offer competitive retail telephone service ceased to exist.²⁰⁶ Forced by the courts, policymakers may now be motivated to make real progress toward procompetitive reforms.

The network-sharing rules in place impose theoretical costs as the rule for compensating sellers in a transaction and are exceedingly ambitious in attempting to impose efficiency by mimicking what an ideally efficient firm would charge. Neither approach helps promote competitive network formation. Theoretical costs do not crosscheck against actual data and are subject to endless debate. Given the collapse of the rules after eight years of arduous effort, it is clear that network sharing has been an immense regulatory burden.

The cost of an existing network *should* send a price signal—a message that invites newcomers to build their own network if they can achieve lower costs. By offering the cost advantages of an ideally efficient firm without the risk of sinking capital, network sharing inherently favors regulation of wholesale markets. Given the evidence that new entrants are not using network sharing as “stepping stones” to building out rival networks, network-sharing mandates have failed to promote true competition.

A simpler, less theoretical pricing model should be used for wholesale access to an incumbent phone carrier’s network: one governing the total service resale program is

²⁰⁴ Ellen Simon, *Rate Rise for Phones Not Certain, Some Say Regulation No Longer Necessary*, HOUSTON CHRON. (June 11, 2004); <http://www.Houston Chronicle.com>.

²⁰⁵ Jon Van, *Rate Fight Masks Larger Phone Issue; Wireless, Other Options Growing*, CHI. TRIB. (June 11, 2004); Ken Belson and Matt Richtel, *Long-Distance Carriers Take a Blow, but It’s No Knockout*, N.Y. TIMES (June 11, 2004); <http://www.nytimes.com/2004/06/11/business/11phone.html>.

²⁰⁶ Mark Wigfield, *AT&T Plans to Stop Offering Local Service in Some States*, DOW JONES NEWS SERV. (June 15, 2004).

already in place. Under TSR, wholesale rates are based on the regulated retail rate minus the costs avoided by the incumbent when other firms procure and service retail customers. States set these (retail-wholesale) discounts some years ago, and they fall between 15 and 25 percent.²⁰⁷ This is a tighter range than the discounts awarded to resellers using UNE-P, which recently fell between 14 and 72 percent.²⁰⁸ As TSR is a requirement imposed by the Telecommunications Act of 1996 that has been enacted, utilized, and not been declared in violation of the act, it offers legal and administrative advantages over an *n*th attempt to determine final UNE rules.

As a practical matter, federal courts have overturned UNE rules, and they now exist on regulatory life support. Using TSR pricing (i.e., “avoided costs”) for particular UNEs, such as the local loop, would appear a reasonable alternative if unbundling were a viable entry strategy for firms. With multiple platforms now offering local access, and the mix becoming richer quite rapidly, this does not appear to be the case with respect to the current regulatory regime. In fact, we expect that wholesale offerings will begin to appear in the marketplace, as has already happened with smaller cable companies partnering with VoIP providers like Vonage to supply local telephone service or with AT&T announcing that it will enter the mobile phone market as a nationwide competitor reselling Sprint PCS service once the sale of its physical (AT&T Wireless) network to Cingular is completed.²⁰⁹ Marketplace deals to share networks will take place in greater degree as legacy network wholesale access pricing rises to market levels.

We propose that unbundled network elements be eliminated, save the local loop, and that the local loop be priced at existing TSR rates. The advantage of an entrant’s using the incumbent’s loop, instead of the entire voice service, is that the entrant may want to use its own switch (and locate it in the incumbent phone carrier’s central office) to provide DSL. Of course, with VoIP, this allows the entrant to provide both voice and high-speed data. It is also important to emphasize the transitional nature of these wholesale rental programs and to phase out network-sharing obligations over a fairly brief interval—three to five years. This would provide further incentives for investment in rival networks and would drive new entrants to more actively seek out emerging competitive platforms with which to partner.

Controversy will meet this proposal, as it will *any serious effort* to promote telecommunications competition. The *New York Times* describes the current situation by quoting industry analyst Scott Cleland: “The Bells and AT&T and MCI scream at the same level whether you are pulling their fingernails out or combing their hair....They have primal screams and that’s it.”²¹⁰ The more important response will be heard from

²⁰⁷ *How Much Pain from UNE-P*, UBS WARBURG (Aug. 20, 2002), at 6.

²⁰⁸ Arizona guarantees the lowest discount of 14 percent, while Illinois offers the highest, 72 percent. *Id.* at 14.

²⁰⁹ “AT&T Corp. announced in mid-May that it will private label services from the Sprint PCS network allowing AT&T to offer wireless service to its more than 30 million business and consumer customers.” Khali Henderson, *Sprint under AT&T’s Hood*, PHONE+ MAG. (July 2004) (emphasis in original); <http://www.phoneplusmag.com/articles/471resell02.html>.

²¹⁰ Ken Belson and Matt Richtel, *Long-Distance Carriers Take a Blow, but It’s No Knockout*, N.Y. TIMES (June 11, 2004); <http://www.nytimes.com/2004/06/11/business/11phone.html>.

capital markets, which will embrace the financial opportunities afforded by a reduction in the tax on infrastructure capital, and from service providers, who will race to offer a mix of innovative technologies made possible by advanced telecommunications networks. Emerging networks will gain traction, a very positive outcome for public policy.

Allowing Prices to Be Driven by Costs

Today's universal service policy is fundamentally hostile to competitive telecommunications markets. That is so because it artificially raises certain prices to lower others, and competition has the inevitable effect of eroding price differences not based on true economic cost. Hence, dealing with universal service, while politically difficult, is a necessary part of the telecommunications competition discussion.

We recommend two broad reforms. The first seeks to reduce economic distortions resulting from how universal service funding is raised. The second attempts to lessen distortions resulting from how these funds are spent.

Distribution of universal service support payments. Universal service largely supports rural telephone networks—"high-cost support." Through various mechanisms, rules seek to ensure that the prices customers pay for basic telecommunications services in rural and sparsely populated suburban areas are below market costs. The flow of funds generally supports networks instead of directly aiding individual customers. This means that *high-cost telephone companies* are subsidized by the government, as opposed to the government's *compensating phone users* in high-cost areas. Consequently, universal service as currently constituted is not competitively neutral. This means that firms that qualify for subsidies are favored over others. This has two very negative effects. First, it reduces incentives for suppliers to be efficient, as losses are made up by taxes. Second, it tends to preclude advanced technologies, such as wireless or VoIP, from having an equal opportunity to serve customers, even when such delivery systems are far more efficient than traditional phone service.

The Universal Service Fund should be transformed from an operating subsidy for some network operators into a program that directly aids consumers via vouchers for low-income households. The voucher subsidy amount should be calculated as the difference between the actual cost of a defined set of basic services and the cost of those services in a particular area under current rate regulations. Under our proposal, targeted households would not have to pay more than they currently pay for basic phone service. In fact, given the opportunity competitors would have to serve such "high-cost" households, the net costs paid by customers (retail service charges minus the value of the voucher) would be very likely to fall.

Under a voucher-based universal service system, governmental efforts to ensure that every American has basic phone service would not distort how telecommunications services are provided. Not all rural customers are poor. Those that pay market prices for services would have a strong incentive to choose services that provide the best value. That will drive business to the most efficient providers of telecommunications services.

Ending telecommunications tax distortions. A number of subsidies are generated in telecom markets by artificially raising certain rates for certain classes of services. We propose removing these implicit cross-subsidies and moving to explicit funding mechanisms.

- Long-distance to local support. The long-distance to local subsidy is an explicit part of the access charge paid by long distance carriers to local carriers to terminate a telephone call. The fee charged is currently set at approximately five times the actual cost of terminating the call.²¹¹ *Regulators should recalculate access charges to reflect actual costs or allow charges to be set through private negotiations.*
- Business to residential support. Regulated charges for local phone service for business customers are higher than for residential customers. In 2002 the average business charge for local phone service was \$43 per month, but only \$23 per month for the same service provided to a residential customer.²¹² *Regulated retail phone rates should be phased out to allow service pricing to be market-based.*
- Urban to rural support. State regulators require incumbent phone companies to charge the same price for basic services throughout the entire service area in a state. *Regulated retail phone rates should be phased out to allow pricing to reflect the actual costs of service.*

In addition to these cross-subsidies, the subscriber line charge—a fixed monthly fee applied to all basic phone service that averaged \$5.64 per month for residential services in 2002²¹³—subsidizes the federal Universal Service Fund. Even this tax creates a distortion because it is applied only to fixed-line phones. We propose eliminating the subscriber line charge.

Our first preference is that future universal service support should come from general tax revenues. This applies to both the Universal Service Fund and any other universal service support government supplies. Such a policy has the advantage of not taxing consumers to subsidize companies or services favored by regulators. Requiring general revenues to support all universal service policies makes the level of support transparent and requires universal service to compete for funds with all other worthy governmental policies.

If funding for universal service must come from telecommunications users, our second preference would be to charge a fixed fee for each telephone number assigned in the United States. Currently, there are approximately 503 million such numbers.²¹⁴ As

²¹¹ Federal Communications Commission, *In the Matter of Access Charge Reform, Sixth Report and Order*, CC Docket No. 96-262 (May 31, 2000).

²¹² Federal Communications Commission, Wireline Competition Bureau, Industry Analysis and Technology Division, *Trends in Telephone Service* (May 2004), at Tables 13-1 and 13-2; www.fcc.gov/wcb/stats.

²¹³ *Id.*

²¹⁴ *Id.*

an example, a \$1 per month charge (less than the current subscriber line charge for fixed line phones of \$5.96)²¹⁵ would generate \$6 billion in revenues per year. This fixed fee would make the funds that support universal service competitively neutral.

SUMMARY

Affirmative competition policy provides policymakers an exit strategy to escape the regulatory morass created by implementation of some of the provisions in the Telecommunications Act of 1996. The network-sharing rules and requirements for funding universal service, in particular, have impeded investment in competitive platforms and have adversely affected the ability of the United States to compete globally. We briefly summarize our proposed policy reforms in Table V-E.

Table V-E. Recommended Regulatory Reforms

1. Phase out mandatory network-sharing rules and, more immediately, end regulated wholesale rates set at theoretical costs.
2. Make 438 MHz of prime radio spectrum available for commercial wireless operators.
3. Exempt high-speed cable modem and digital subscriber lines from common carrier regulations.
4. Make Internet services not subject to state phone service regulations.
5. Raise funds for universal service directly from general tax revenues, rather than from hidden costs that penalize telecommunications competition and the growth of network services.
6. Distribute universal service funds directly to targeted consumers.

²¹⁵ *Id.*

VI ECONOMIC GAINS FROM DEREGULATION

We first offer approximation estimates to suggest the magnitude of economic effects from proposed reforms. We project that policy changes will increase capital investment within the telecommunications industry by \$58 billion and will add \$167 billion to GDP over five years. The proposed deregulation could also increase overall productivity growth by 0.25 percent per year as broadband networks extend to smaller companies and more suburban and rural locations. We forecast this productivity increase to add another \$467 billion to GDP over five years and to reduce annual inflation (and long-term interest rates) by 0.25 percent. Through the combined effects of both increased investment spending and economywide productivity gains, reform has the potential to raise GDP by \$634 billion over five years and to create more than 212,000 new jobs.

*

REFORM BENEFITS FOR THE TELECOMMUNICATIONS SECTOR

Of the substantial benefits that would result from the reforms we have outlined, the direct effects on output, employment, and market value for the companies within the telecommunications sector itself are easiest to see. As stated above, telecommunications services and telecommunications equipment companies have been at the epicenter of the economic slowdown and stock market collapse of the past three years. But under the proposed reforms, the telecommunications sector—now heavily burdened by regulations—would return to growth. Our recommended reforms, by improving returns on capital and cash flow for the industry, will encourage capital spending on telecommunications infrastructure.

We have produced point estimates to forecast how the economy would respond to suggested telecommunications policy reforms. These projections, dependent on a range of assumptions, are best considered rough approximations suggesting the magnitude of economic activity that is likely to follow. We find that the deregulation program outlined in Section V could lead to dramatic increases in investment spending, output, and employment in the sector. On the basis of our estimates, the reforms outlined above would generate a total of \$58 billion in incremental capital spending for network assets over the next five years by RBOCs, facility-based CLECs, wireless companies, and cable companies.

REFORM BENEFITS FOR THE OVERALL ECONOMY

The proposed changes would also have significant, lasting effects on the overall economy and would benefit all those connected to—but not necessarily employed by—

the telecommunications sector. Virtually all telephone users would reap substantial gains through price reductions. Not only would social goals such as universal service continue to be met, but competitive efficiencies would markedly increase the productive use of telecommunications networks. In particular, U.S. businesses would witness dramatic cost savings in the use of communications technology, as business phone service has been priced artificially high.

Increases in capital spending in one industry also lead to increases in output and employment in other industries—the multiplier effect described in macroeconomics textbooks. Bureau of Economic Analysis multipliers, for example, suggest that each dollar of additional telecommunications capital spending will ultimately generate \$2.86 in extra output, while every \$1 million rise in telecommunications capital spending leads to 18.2 additional jobs.²¹⁶ We estimate that the proposed reforms would stimulate sufficient capital spending to add \$167 billion to output and would increase employment by more than 212,000 jobs.

REVIEW OF PREVIOUS STUDIES

A burgeoning literature addresses the economic impact of telecommunications regulations. Economists have taken a wide variety of approaches to assess the impacts of changes in regulations on investment, growth, job creation, and consumer welfare. Although we can only briefly summarize this work, we review a representative sample bearing most directly on our research objective in Appendix III to give the reader some perspective on the variety of approaches available and help put our analysis in context.

ESTIMATING THE IMPACT OF REFORMS ON THE ECONOMY

In this section, we attempt to estimate both industry-specific and economywide impacts of our recommended reforms on the assumption that policymakers promptly implement them. We believe that these impacts would be likely to occur through two channels: (1) the aggregate demand channel of increased investment spending on output, employment, and incomes; and (2) the aggregate supply channel of increased investment on productivity, long-term growth, inflation, and interest rates. Both produce important effects. An estimate of the total impact of telecommunications reforms should consider both sources of economic influence.

Most of the studies reviewed have focused on the demand channel of influence. See Appendix III. Their principal interest is in evaluating the impact of existing or proposed regulations on the investment incentives of one or more telecommunications subsectors—ILECS, facility-based CLECs, cable companies, or wireless companies. The studies then translate the proposed change in regulations into projections of spending on capital equipment and estimate the macroeconomic multiplier, or “ripple effects,” that increased capital spending will have on incomes and spending in other parts of the economy.

²¹⁶ See <http://www.bea.doc.gov/bea/regional/rims/>.

Other economists have focused on the impact capital spending has on an economy's long-term growth rate by increasing the quality and amount of productive capital available to workers.²¹⁷ Those economists tend to be specialists in macroeconomics or growth theory. Their interest is in explaining increased labor productivity—output per hour of work—the principal driving force behind increases in living standards over time.

With the caveat that it is not possible to represent adequately the work of so many scholars on such broad and difficult subjects, we attempt to account for the principal themes from both approaches in our work. Demand-driven multiplier effects are especially relevant in a depressed sector in which ample supplies of slack resources exist, as is the case in the telecommunications sector today. Multiplier effects on output and employment, however, are unlikely to be permanent. They last only as long as the capital spending stimulus is active and as long as the economy has slack resources. At full employment, further stimulus would be more likely to increase prices than output.

It is also important to note that some of that investment assumed to take place over five years in response to policy reforms could take place, beyond the five-year window we analyze, without policy reform. We do not attempt to net out such possible offsets. In contrast, however, supply-driven productivity effects are long-term in nature. Increases in the capital stock raise output per hour of work over the life of the capital, which can be many years. And increases in the capital stock raise productivity, reducing costs and prices—while improving profits—in the long term. An additional caveat is important: the estimates offered here project gains over a five-year period when deregulatory policies encourage increased investment.

ANALYTICAL APPROACH

We take a fundamental value-oriented approach to analyze the impact of a regulatory change on the capital spending behavior of the telecommunications sector. Our analysis is based on the notion that managers are driven by their obligations to

²¹⁷ See, for example, Robert M. Solow, *Technical Change and the Aggregate Production Function*, 39 REV. ECON. & STAT. 312 (1957); Dale W. Jorgenson, *American Economic Growth in the Information Age*, PROGRESS ON POINT (Progress and Freedom Foundation, 2002), at 9; Dale W. Jorgenson, *Productivity and Economic Growth* in ERNST BERNDT AND JACK E. TRIPLETT, EDS., FIFTY YEARS OF ECONOMIC MEASUREMENT (Univ. of Chicago Press, 1990), at 19–118; Dale W. Jorgenson, M. S. Ho, et al., *Lessons from the US Growth Resurgence*, 25 J. POL'Y MODELING 453 (2003); Stephen D. Oliner and Daniel E. Sichel, *Information Technology and Productivity: Where Are We Now and Where Are We Going?* 25 J. POL'Y MODELING 477 (2003); Dominick Salvatore, *The New Economy and Growth: Editor's Introduction*, 25 J. POL'Y MODELING 431 (2003); Kevin J. Stiroh, *Measuring Information, Technology, and Productivity in the New Economy*, 3 WORLD ECON. 43 (2002); Barry P. Bosworth and Jack E. Triplett, *Services Productivity in the United States: Griliches' Services Volume Revisited*, CRIW Conference in Memory of Zvi Griliches, Brookings Institution (2003); Jason G. Cummins and Giovanni L. Violante, *Investment-Specific Technical Change in the United States (1947–2000): Measurement and Macroeconomic Consequences*, 5 REV. ECON. DYNAMICS 243 (2002); ROBERT E. LITAN AND ALICE M. RIVLIN, *THE ECONOMIC PAYOFF FROM THE INTERNET REVOLUTION* (Brookings Institution Press, 2001).

preserve and grow the value of their shareholders' capital.²¹⁸ Thus, they take advantage of opportunities to make investments that increase shareholder value by deploying new and existing capital in activities that will generate a return on capital higher than their cost of capital, which represents the opportunity cost of their shareholders' funds. Investors will highly prize firms that consistently generate returns greater than the cost of capital; their shares will tend to be valued in excess of the value of their capital.²¹⁹

Specifically, we use an intrinsic value framework to estimate the value of firms. This approach estimates the intrinsic value of a firm by projecting the financial statements of a firm—including its revenue stream, costs, profits, taxes, and capital requirements—far into the future. The objective is to produce an estimate of the firm's free cash flow—the after-tax cash profits available to fund new investments or to pay out to investors—for each future year. We find the estimate by subtracting both taxes and additional capital requirements from cash operating profits. This projected free cash flow stream is discounted back to present value at the firm's weighted average cost of capital to estimate the total enterprise value of the firm. Enterprise value less total outstanding debt and other obligations equals the intrinsic value of the firm's equity.

In this intrinsic value framework, changes in government regulations affect capital spending decisions within a firm by altering one of the many “value drivers” (such as sales growth, prices, costs, profit margins, capital requirements, or tax rates) that determine the return on invested capital. These value drivers, in turn, can be broken down into the factors that influence a firm's after-tax free cash flow—its cash profits from doing business—and those that influence the amount of capital the firm requires to undertake an investment.

Telecommunications regulations can affect both cash flow and capital requirements. Unbundling requirements combined with prices set below actual costs reduce the price and the profit margin of the network owner. The result is a lower return on capital, which reduces the intrinsic value of the firm in the capital markets. If the resulting return is below the firm's cost of capital, managers will have incentives to reduce capital spending, buy back stock, or return capital to owners through increased dividends, to preserve shareholder value.

This textbook explanation of investment decisions is, of course, highly simplified. In the real world, managers have to live with informed guesses about the variables they

²¹⁸ Capital refers to the funds the firm uses to establish, grow, and operate. In general, a firm can create value for its debt and equity investors only when it earns an after-tax return on invested capital (ROIC) higher than its weighted-average cost of capital (WACC), the opportunity cost of investors' funds in other uses. For a discussion of this approach and examples of how to calculate capital, see T. COPELAND, T. KOLLER, ET AL., VALUATION: MEASURING AND MANAGING THE VALUE OF COMPANIES (John Wiley, 2000).

²¹⁹ The ratio of the value of a firm to the value of its capital is known as the *Q*-ratio. We refer to the ratio of a firm's intrinsic value to the value of its capital as the warranted *Q*-ratio. The firm's ROIC strongly influences this value. According to intrinsic value methods, if a firm earns an ROIC equal to WACC, then the firm will have a warranted *Q*-ratio of 1.0; that is, each dollar of capital the firm invests produces exactly a dollar of value for shareholders, so the firm creates no value for investors.

need to account for to fully assess the value-creating potential of a given investment. By and large, most managers make an honest attempt to do so, and both board rooms and financial markets widely accept the basic economic logic.

Specifically, we analyze the impacts of our recommended reforms on RBOCs, CLECs, cable companies, and wireless companies to identify the most important factors altering returns, revenue growth, profit margins, and capital requirements.

We examine the historical distributions for the most important value drivers to make the assumptions to project future cash flows and returns and establish a baseline projection for the amount of capital investment that would take place in the absence of policy change. We then rerun the analysis after evaluating the impact of proposed regulatory changes on the key value drivers to determine the likely impacts on telecommunications investment spending.

We then use a set of multipliers from standard macroeconomic analysis to estimate the impact of changes in telecommunications capital spending on output and employment for the U.S. economy as a whole.

Finally, we estimate the impact the recommended reforms might have on U.S. productivity growth. We then combine the multiplier and productivity effects to produce an estimate of the overall effect on economic output and jobs.

ILEC INVESTMENT

Incumbent telephone companies invested nearly \$300 billion in landline network assets between 1992 and 2003, a sum accounting for 49 percent of wireline investments, 41 percent of all wireline and wireless investments, and 37 percent of all telecommunications investments (including those made by cable television companies). Historically, RBOCs have accounted for more than 90 percent of ILEC investments and serve a still greater percentage of leased UNE lines. For that reason and because of data availability, we focus on the RBOCs' landline investments when estimating the impact of our UNE reforms on capital spending.

Building and operating a local telephone network is capital-intensive. During the 1982–2002 period the RBOCs have, on average, deployed between \$2.50 and \$2.75 in capital to generate each \$1.00 in annual sales.²²⁰ These capital expenditures have two primary components. First, funds are invested to maintain existing networks, which can be interpreted as replacing the economic depreciation of plant and equipment. Investment beyond the level required to maintain the current network increases capacity to grow revenue from services sold directly to end-users and to build and maintain the capacity required to serve wholesale customers.

²²⁰ The inverse of this calculation is known as capital turnover—0.40 in this example. It expresses the number of dollars of sales a firm generates per dollar of capital. Rutledge Capital calculations (May 2004); COMPUSTAT Database Research Insight; Standard & Poors CD ROM (Apr. 2004).

1985–1995 BASE PERIOD

We use 1985–1995 as a base period to analyze the ratio of capital expenditures to sales. Between 1985 and 1995, RBOCs were authorized to provide only local telephone service. The firms faced comparatively few unbundling requirements. They did not yet have significant competition from wireless or cable companies, and they enjoyed relatively stable revenue growth of 4 percent per year. The result was a ratio of capital expenditures to sales of about 21 percent²²¹ with low year-to-year variance. Most of this capital expenditure, between 15 percent and 20 percent, was devoted to network maintenance; the residual funded growth.

The more recent period is considerably different. See Table VI-A.²²²

Table VI-A. Wireline Operating Segment Statistics for BellSouth, Verizon, Qwest, and SBC: 1998–2003

	1998	1999	2000	2001	2002	2003
Sales Revenue	\$103,393	\$107,003	\$113,979	\$117,987	\$111,463	\$107,879
Capital Expenditures	\$22,868	\$26,437	\$34,048	\$34,783	\$18,883	\$16,351
Capital Expenditures/Revenue	22.1%	24.7%	29.9%	29.5%	16.9%	15.2%

Note & Sources: Revenues and capital expenditures are in \$ millions. Company annual reports, SEC Form 10-K filings, various dates, and Rutledge Capital calculations (May 2004).

Broadband buildouts drove the dramatic increase in the RBOC capital expenditure/revenue ratio from 1998 to 2001. For instance, SBC spent approximately \$3.2 billion during this period on Project Pronto, which yielded 1.3 million DSL subscribers and the capability to deliver DSL to 25 million households.²²³ Qwest expanded its data network capabilities with substantial investments in fiber-optic plants. Profits from these and other investments, however, proved elusive and led to a 50 percent reduction in capital spending per dollar of revenue between 2001 and 2003. This reduction in spending included cancellation of Project Pronto by SBC, which reported to shareholders:

During the third quarter of 2001, due primarily to an adverse and uncertain regulatory environment, we began a slowdown of the capital expenditures to build our national broadband network, which includes fiber, electronic and other technology.²²⁴

²²¹ This ratio was slightly higher (23.4 percent) for all companies reporting to the FCC as ILECs. Rutledge Capital calculations (May 2004); COMPUSTAT Database Research Insight; Standard & Poors CD ROM (Apr. 2004).

²²² To look at the changes to the wireline business of the RBOCs over this period, we use operating segment data provided by the companies in public filings. These data typically divide major financial statistics into wireline, wireless, international, and other.

²²³ SBC Communications, SEC Form 10-K, December 31, 2001.

²²⁴ *Id.*

BASELINE CASE

To estimate RBOC capital investment in our baseline case, which assumes that current regulations remain in force, we make the following assumptions:

1. No change occurs in regulations regarding UNE-P terms and conditions, or in access requirements for high-speed (DSL) data networks.
2. Annual wireline revenue grows 0 percent over the next five years. (This reflects increased competition from wireless carriers and competitive providers of wireline services.)
3. No major new projects add DSL or fiber network capacity.
4. The capital expenditures/revenue ratio increases from 15.2 percent in 2003 to approximate maintenance levels of 17.5 percent.²²⁵
5. CLECs continue to increase their market share of the local market from approximately 12 percent in 2003 to 20 percent in 2008.
6. RBOCs protect market share by bundling long-distance with local services.

Table VI-B. RBOC Baseline Capital Spending: 2005–2009

	2005	2006	2007	2008	2009	Total	Average
Wireline Revenues	\$107,879	\$107,879	\$107,879	\$107,879	\$107,879	\$539,395	\$107,879
Capital Expenditures	\$18,879	\$18,879	\$18,879	\$18,879	\$18,879	\$94,395	\$18,879
Capital Expenditures/Revenues	17.5%	17.5%	17.5%	17.5%	17.5%	17.5%	17.5%

Note & Source: Revenues and capital expenditures are in \$ millions. Rutledge Capital calculations (May 2004).

In our baseline case, RBOC landline revenues remain at the 2003 level of \$107.9 billion (see Table VI-B) throughout the next five years. That represents a situation in which overall growth in the telecommunications sector is offset by increasing penetration of wireless and cable telephony services and increasing CLEC market share. RBOCs invest an average of 17.5 percent of revenues, or \$18.9 billion per year, in landline network assets. Total investments over the five-year period equal \$94.4 billion.

This baseline case is not our most likely forecast, but it is a plausible estimate of what would happen were regulations to remain frozen. We compare this outcome with the results of alternative scenarios.

²²⁵ It is important to keep in mind that no reasonably precise way exists to estimate the required level of maintenance capital spending. We have chosen 17.5 percent of revenues as the midpoint of the 15–20 percent of revenues that is frequently discussed in analyst reports. We have had conversations with analysts, however, that suggest that this number could be as low as 13–15 percent. In using 17.5 percent, rather than a lower number, we are being conservative, in the sense that lower numbers in the baseline case would imply a larger net impact from reforms.

THE IMPACT OF NETWORK-SHARING REFORMS

Under our recommended reforms, CLECs will continue to have the option to use the copper loop between central offices and end-users, known as ILEC “last mile” facilities, for some period of time. They will, however, pay prices that approximate the prorated cost the ILEC incurs in providing its existing network, referred to in earlier sections of this report as TSR rates, rather than hypothetical TELRIC prices. This change would increase revenues and profit margins for ILEC network owners and would increase lease payments that UNE-based CLECs make to ILECs by a similar amount. The benefits of this change would accrue to network owners. The resulting increased returns on capital for RBOCs would lead to an increase in RBOCs’ capital spending.

To estimate the impact of UNE reform on RBOC capital investment, we make the following assumptions:

1. Wholesale network lease rates are increased to approximate actual embedded costs. We model this as a 37.5 percent increase from current levels.²²⁶
2. All existing leased lines, including UNE-P, UNE-L, and TSR lines, remain in place during our forecast period.²²⁷
3. RBOC revenues and pretax profits rise by \$1.88 billion per year as a result and increase return on capital.²²⁸
4. RBOC capital spending increases to the historical average capital expenditure/revenue ratio of 21 percent to reflect the higher return on capital.

²²⁶ The 37.5 percent figure is consistent with recent analyst comments regarding the increasingly competitive market for local phone services. See, for example, A. Latour and S. Young, *Rules Change Could Alter the Fate of Long-Distance Giants*, WALL ST. J. (June 11, 2004), at B1; B. Charny, *Chief Justice Rejects Telecom Case*, CNETNEWS.COM (June 14, 2004); www.news.com/2100-1037-5233301.html. Other authors have reported a higher estimate, for example, Jeffrey A. Eisenach and Thomas M. Lenard, *Telecom Deregulation and the Economy: The Impact of “UNE-P” on Jobs, Investment, and Growth*, Progress and Freedom Foundation (Jan. 2003), at 18.

²²⁷ In fact, we would expect the increase in lease rates to trigger a number of changes. Higher rates would inhibit the ability of CLECs to attract customers by offering large discounts, which would result in some degree of migration of customers back to RBOCs over time. Higher lease rates would also induce some CLECs to build their own facilities. Unfortunately, we have no reliable estimates of these changes.

²²⁸ Rutledge Capital calculations (May 2004); COMPUSTAT Database Research Insight; Standard & Poors CD ROM (Apr. 2004). This increase in after-tax profits is lower than some recent analyst estimates and reflects our conservative use of a 37.5 percent increase. See, for example, T. Horan and S. Anantha, *Telecom Services: Solicitor General & FCC Majority Won’t Appeal UNE-P Overturn; Potential Earnings Boost to the RBOCs Underestimated by the Market*, CIBC EQUITY RESEARCH INDUSTRY UPDATE (2004); P. S. Brogan and S. C. Cleland, *How UNE-P Fuels the Fire of Telecom’s Competitive Intensity*, PRECURSOR GROUP (2003); Merrill Lynch, *Triennial Review Order Largely Sustains the Regulatory Status Quo—A US Telecom Snafu?* TELECOMMUNICATOR (2003).

Table VI-C presents our estimates of the impact of our recommended UNE reforms on RBOC capital spending over the next five years.

Table VI-C. Incremental Capital Spending Due to Proposed UNE Reforms: 2005–2009

	2005	2006	2007	2008	2009	Total	Average
Revenues	\$109,754	\$109,754	\$109,754	\$109,754	\$109,754	\$548,770	\$109,754
Capital Expenditures	\$19,756	\$20,853	\$23,048	\$23,048	\$23,048	\$109,753	\$21,951
Capital Expenditures/Revenues	18.0%	19.0%	21.0%	21.0%	21.0%	–	20.0%
Incremental Capital Expenditures	\$877	\$1,974	\$4,170	\$4,170	\$4,170	\$15,360	\$3,072

Notes & Source: Revenues and capital expenditures are in \$ millions. Total capital expenditures do not equal the sum of capital expenditures because of rounding. Rutledge Capital calculations (May 2004).

Substituting “avoided cost” pricing for TELRIC-priced UNE-P would raise wholesale prices by approximately 37.5 percent. This would increase RBOC landline revenues by approximately \$1.88 billion in each of the next five years, which would stimulate an additional \$15,360 million in capital expenditures by the RBOCs over the next five years, an increase of \$3.1 billion per year.

Market Values

As described above, we calculate intrinsic value as the net present value of the estimated future free cash flows (net operating profit after tax, or NOPAT, less capital expenditure) of the firm, minus debt. This is different from the observed market value, which is the price at which equity shares trade. Over time, market prices tend to converge to their intrinsic values, but there is no assurance that this will occur within any given time frame.

The network-sharing reforms would have a significant impact on RBOC intrinsic values by raising their revenues without materially raising their costs and would thus raise their profits as well. Revenues increase by \$1.88 billion per year as a result of the shift from TELRIC to TSR pricing. If we assume no change in the number of CLECs using leased lines, operating profits before tax would rise by the same amount.²²⁹ RBOCs pay (using an eighteen-year sample) an average cash tax rate of 30.8 percent.²³⁰ This implies that annual net operating profits after taxes would increase by $(1 - .308) \times (\$1.88 \text{ billion}) = \1.30 billion .

Next, we must translate the \$1.30 billion annual increase in NOPAT into free cash flow by subtracting incremental capital costs required to support the additional revenues. Although we see no reason why the change in lease rates would affect inventories or payables, accounts receivables should increase to reflect the higher revenues. The RBOCs’ 2003 year-end balance sheets report 73.5 days of receivables, which implies that receivables were 20.4 percent of sales. If we use that figure as our estimate of additional

²²⁹ We assume an increase in revenues with no incremental costs to obtain the resulting increase in operating profits.

²³⁰ Rutledge Capital calculations (May 2004); COMPUSTAT Database Research Insight; Standard & Poors CD ROM (Apr. 2004).

working capital required to support a dollar of sales increase, we can estimate that in the first year firms will use 20.4 percent, or \$0.265 billion of the \$1.30 billion NOPAT increase, to provide additional working capital, leaving \$1.035 billion in additional free cash flow. In the second year and beyond, however, the entire \$1.30 billion would drop into increased free cash flow, since there is no further increase in sales or required working capital.

An estimate of the average after-tax cost of capital (WACC) for the RBOCs is 7.38 percent.²³¹ At this discount rate, the \$1.30 billion increase in NOPAT increases the intrinsic enterprise value of the RBOCs by \$14.0 billion. By the end of the fifth year, intrinsic equity value would increase by \$17.6 billion less the \$0.265 billion increase in working capital, plus the accumulated after-tax profits during the five years of \$6.24 billion, or \$23.6 billion.

While it is important to note that the increase in leased-line charges would decrease NOPAT for CLEC resellers, CLEC market value changes would not offset ILEC gains. That is seen in the near-zero value attached to CLEC resale models before reform and is explained by the fact that reseller profitability with regulated retail/wholesale margins are unsustainable.²³²

*CLEC Investments*²³³

Facilities-based CLECs should also increase capital spending as a result of our proposed reforms. We use the midpoint of estimates from two research papers—one by Robert W. Crandall, Allan T. Ingraham, and Hal F. Singer, the other by James Eisner and Dale E. Lehman²³⁴—which imply that instituting policies similar to our wholesale access reform proposals would increase CLEC investment by \$2.7 billion. We have distributed the additional \$2.7 billion in CLEC network investments uniformly over the five-year period as \$540 million per year.

BROADBAND REFORM AND DSL INVESTMENT

Our next set of reforms are designed to stimulate investment in high-speed telecommunications networks by classifying new DSL, cable, and VoIP investments as information services, which are not subject to unbundling or other regulatory obligations. CLECs would still have access to the high-frequency portion of the incumbent's existing

²³¹ Raul L. Katz and Carolina Junqueira, *Managerial Strategies and the Future of ROIC in Telecommunications*, Booz, Allen, Hamilton (2003).

²³² Thomas W. Hazlett, *The Irony of Regulated Competition in Telecommunications*, 4 COLUM. SCI. & TECH. L. REV. 1 (2003); Thomas W. Hazlett and Arthur M. Havenner, *The Arbitrage Mirage: Regulated Access Prices with Free Entry in Local Telecommunications Markets*, REV. NETWORK ECON. 440 (Dec. 2003).

²³³ We exclude cable operators here and consider their investments in the following subsection.

²³⁴ James Eisner and Dale E. Lehman, *Regulatory Behavior and Competitive Entry*, 14th Annual Western Conference, Center for Research in Regulated Industries (June 28, 2001); Robert W. Crandall, Allan T. Ingraham, and Hal J. Singer, *Do Unbundling Policies Discourage CLEC Facilities-Based Investment?* 4 TOPICS IN ECON. ANALYSIS & POL'Y 1 (2004).

local loop. This means that ILECs would be able to make new investments in remote nodes and fiber-optic lines without facing unbundling requirements. Eliminating unbundling obligations for new investments is key to the incentives to make important capacity-expanding extensions of existing networks.

We make the following assumptions to estimate the impact of broadband reform on RBOC high-speed network investments:

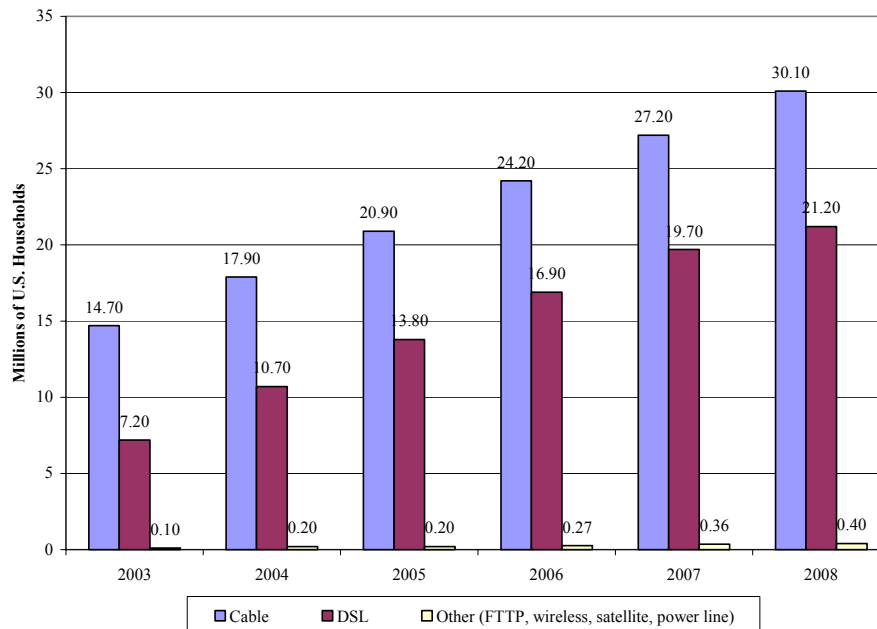
1. Regulations are changed and clarified so that the incumbent phone operators are paid historical costs for access to their network elements.
2. Legacy networks are not required to provide third-party access to advanced technologies such as fiber loops or DSL facilities.
3. These changes are effective at the beginning of 2005.
4. ILECs respond by reinstating plans to upgrade and expand broadband networks.
5. ILECs ramp up their capital expenditures/sales ratio to a peak of 23 percent in 2007 to reflect higher returns on capital.
6. DSL's share of residential broadband increases from 39 percent in 2005 to 45 percent in 2009.
7. 69 million households subscribe to cable modem or DSL service by 2009.
8. DSL revenues per subscriber average \$55.21 per month in 2005 and decline to \$48.68 in 2009.²³⁵

We estimate the impact of reforms on DSL capital spending by first specifying a baseline DSL adoption path to acknowledge that we would see growing numbers of DSL subscribers, even if no further reforms were to take place. We use the Yankee Group's recent projections of DSL and high-speed cable subscribers.²³⁶ This forecast, shown in Figure VI-A, has DSL subscribers increasing from 7.2 million in 2003 to 21.2 million subscribers in 2008, with 51.3 million total broadband subscribers in 2008. We extrapolate the Yankee Group's forecast one year to 2009, when we assume 23.1 million DSL subscribers and 56.4 total broadband subscribers.

²³⁵ This includes both residential and business DSL customers. We have used Telecommunications Industry Association projections for the average monthly DSL fee through 2007, which we have extended through 2009 by decreasing monthly revenues by 3.3 percent per year in 2008 and 2009. Telecommunications Industry Association, *TIA's 2004 Telecommunications Market Review of Forecast*, (2004), at 115.

²³⁶ Yankee Group, *Broadband Subscriber Forecast* (2004); http://www.yankeegroup.com/public/products/research_note.jsp?ID=11720.

Figure VI-A. U.S. Baseline Broadband Subscriber Growth: 2003–2008



Note & Source: FTTP = fiber to the premises. Yankee Group (2004); http://www.yankeegroup.com/public/products/research_note.jsp?ID=11720.

We estimate the addition to ILEC revenues and capital spending that would occur if DSL subscriber growth were given by the baseline projections. Then we estimate the subscribers, revenues, and capital spending in our reform case. If policy changes are quickly implemented, we assume that 2009 broadband subscribership (cable modems plus DSL) will increase from 56.4 million to 69 million. Our baseline estimate of 56.4 million subscribers is approximated from recent analyst projections.²³⁷ We have conservatively assumed that deregulation will increase cable modem and DSL subscribers by 5 million each, to generate a combined increase of 10 million broadband subscribers. We attribute each year's added subscriber increment to the impact of reform. Table VI-D presents estimates of the impact of proposed reforms on ILEC DSL capital spending over the 2005–2009 period.

Table VI-D. Incremental Capital Spending on DSL Due to High-Speed Information Services Reforms: 2005–2009

	2005	2006	2007	2008	2009	Total	Average
Additional Revenues	\$1,193	\$2,087	\$2,639	\$3,673	\$4,644	\$14,236	\$2,847
Incremental Capital Spending	\$239	\$438	\$607	\$808	\$975	\$3,067	\$613

Note & Source: Figures are in \$ millions. Rutledge Capital calculations (May 2004).

²³⁷ Morgan Stanley, *What Does the Market Expect?* (Apr. 8, 2004), at 43 and 45.

On the basis of these estimates, classifying DSL as an information service and eliminating unbundling on DSL investments, in addition to the unbundling regulation reforms analyzed in the previous section, would increase ILEC investment in DSL network capacity by an additional \$3.1 billion over the next five years, an average of \$613 million per year above the baseline trend.

The additional DSL capacity would increase the number of DSL subscribers to 31.1 million by 2009, which would increase ILEC revenues by an average of \$2.8 billion per year, or \$14.2 billion over the five-year period. The increase in annual revenues in 2009 of \$4.6 billion per year equals 1.5 times the cumulative increase in capital over the five year period, a significant improvement in capital turnover from the approximate 0.58 percent average sales-to-capital ratio over the 1993–2003 period.²³⁸

Market Values

The DSL reforms would also have a significant impact on the value of RBOC equities. As we have noted, RBOC revenues increase by \$4.6 billion per year in the fifth year of our projections as a result of adding DSL customers. The 2003 ratio of NOPAT to sales of 18.2 percent implies a \$0.84 billion increase in NOPAT in 2009. The 7.38 percent WACC figure we use implies an \$11.3 billion increase in the total enterprise value of RBOCs. Intrinsic equity value should rise by approximately \$11.3 billion less the \$3.1 billion increase in capital required to add the capacity, plus the accumulated after-tax profits earned during the five years, which amounts to \$12.4 billion,²³⁹ in addition to the \$23.6 billion increase in intrinsic value due to the wholesale pricing changes. Together, these reforms imply a \$36.0 billion increase in RBOC intrinsic value by the end of the fifth year.

Cable Operator Investments

The reforms should also have significant impacts on investments in both high-speed data (cable modem) and cable telephony by cable companies. As discussed, cable companies have been deterred from making incremental investments to deliver full-service telephony, in part because of regulatory disincentives. Eliminating below-cost wholesale prices for resellers and classifying cable networks as information services would unleash investments in both high-speed data (cable modem) and cable telephony.

²³⁸ This suggests that our estimates are conservative when compared with historical capital needs and implies that the network investments that have already been made would allow the companies' revenues to rise with substantially less incremental capital than has been historically necessary. Rutledge Capital calculations (May 2004); COMPUSTAT Database Research Insight; Standard & Poors CD ROM (Apr. 2004).

²³⁹ This estimate would increase substantially if investors were to revise their estimates of RBOC profit growth rates, as we might expect in this case.

High-speed data services represent a significant area of revenue growth for cable companies.²⁴⁰ We use the Yankee Group forecast that cable modem subscribers will increase from 14.7 million in 2003 to 30.1 million in 2008 and extrapolate one year to 33.3 million subscribers for 2009 as our baseline assumption for subscribers to high-speed data services. We assume that cable company high-speed data capital expenses of \$50 per subscriber in 2005 decline to \$35 per subscriber in 2009.²⁴¹

We estimate the incremental impact of our reforms on cable modem capital spending by projecting the number of subscribers in the reform case and then applying the same per-subscriber capital spending costs above. Our reform case assumes that cable modem subscribers will increase to 38 million, or 4.7 million over the baseline trend (Yankee Group). The result is \$713 million of incremental capital spending attributable to reform over the five-year period, or \$143 million in additional capital spending per year.

Cable telephony investment is also likely to increase with reforms. By the end of 2003, telephone-ready cable passed 16.4 million of the total 111 million homes in the United States.²⁴² On the basis of estimates from Cox Communications,²⁴³ it would cost an additional \$267 in capital spending per household to supply VoIP service virtually equivalent in quality and reliability to standard telephone service.

In our baseline case, we assume that cable operators make one-half of the remaining market telephony-ready by 2009. In our reform case, we assume that cable companies make the entire market telephony-ready by 2009. The incremental impact of the reforms, then, is the difference between the two cases. We use 95 percent of the 121 million total households in 2009,²⁴⁴ or 115 million households, as a measure of the total universe of households in cable TV areas in 2009. That implies that 98.6 million households are still to be passed by cable telephone lines. Half that number equals 49.3 million homes. The cost of making those 49.3 million homes telephony-ready by 2009 at \$267 per subscriber is \$2.6 billion, an average of \$527 million per year. See Table VI-G, which appears later in this section.

²⁴⁰ A recent Morgan Stanley report states that high-speed data services will account for 40 percent of cable revenue growth over the next several years. See Richard B. Bilotti, Benjamin Swinburne, et al., *What Does the Market Expect?* MORGAN STANLEY CABLE/SATELLITE INDUSTRY OVERVIEW (2004).

²⁴¹ This figure is the sum of capital expenditures for high-speed data maintenance per subscriber plus the annual cost of high-speed data consumer premises equipment, assuming the average equipment life of five years. Richard B. Bilotti, Benjamin Swinburne, et al., *Truth, Lies, and Truck Rolls: Understanding Product Profitability*, Morgan Stanley (2002), at 8, Exhibit 3.

²⁴² LEICHTMAN RESEARCH GROUP, RESEARCH NOTES (First Quarter 2004).

²⁴³ Cox Communications, White Paper, *Voice over Internet Protocol: Ready for Prime Time* (May 2003); http://media.corporate-ir.net/media_files/IROL/76/76341/May_whitepaper_2.pdf. Cox projects that 20 percent of households passed subscribe to telephone service from the cable operator. *Id.* at 11. The \$267 figure refers to VoIP deployment, which is less costly than circuit-switched deployment costs of \$527 per customer. We have used the \$267 figure as a conservative estimate.

²⁴⁴ Robert W. Crandall, Hal F. Singer, and Charles L. Jackson, *The Effects of Ubiquitous Broadband Adoption on Investment, Jobs, and the U.S. Economy*, Criterion Economics (Sept. 2003).

Broadband Consumer Surplus

Consumer surplus is a measure of how much value consumers place on a good or service above what they actually pay for that product. Estimates of consumer surplus depend on the amount of a product being consumed, on the price being paid, on the sensitivity of consumer demand to changes in the price of the product (what economists call price elasticity of demand), and on the overall shape of the demand curve. Other researchers' estimates suggest that the elasticity of demand for broadband services is somewhere between -1 and -1.5 .²⁴⁵ We use the -1 figure and assume that the demand curve is linear. We also assume a top-end value for broadband services of \$120 per month, a price above which no consumer would purchase the service.²⁴⁶

Given these assumptions and the prices and quantities implicit in our revenue figures above, we estimate that deregulatory gains in consumer surplus in broadband services would range from \$4.5 billion in 2005 to \$12.9 billion in 2009, for a cumulative benefit of \$42.7 billion. See Table VI-E. We estimate that for every additional dollar that monthly subscription prices are reduced for DSL or cable modem service, cumulative consumer surplus would increase by an additional \$3.8 billion over the next five years.²⁴⁷

Table VI-E. Broadband Consumer Surplus Estimates: 2005–2009

Year	Households	Households with Broadband	Total Additions to Broadband Consumer Surplus	Baseline Growth Additions to Consumer Surplus	Incremental Consumer Surplus Due to Reforms
2005	114.6	39	\$10.30	\$5.90	\$4.50
2006	116.2	48	\$18.70	\$12.10	\$6.60
2007	117.8	55	\$25.80	\$17.70	\$8.10
2008	119.5	62	\$32.60	\$22.00	\$10.60
2009	121.1	69	\$39.30	\$26.40	\$12.90
Cumulative			\$126.80	\$84.10	\$42.70

Notes & Source: Households are in millions. Consumer surplus is in \$ billions. Additions to consumer surplus are accurate to the nearest 10¢. Cumulative additions to broadband consumer surplus do not equal the sum of additions to broadband consumer surplus because of rounding. Rutledge Capital calculations (May 2004).

SPECTRUM REFORM

Our spectrum policy reforms would be likely to produce major economic benefits. In particular, expanding the quantity of bandwidth the FCC allocates to commercial users would dramatically drive down costs per minute and would greatly increase the number of wireless minutes consumed. This change would substantially increase consumer welfare and intensify competition in both voice services and broadband Internet access.

²⁴⁵ *Id.* at 7.

²⁴⁶ Crandall, Singer, and Jackson use a similar assumption.

²⁴⁷ Our estimates are somewhat higher than the Crandall, Singer, and Jackson estimates over the same years, principally because we have more recent 2003 figures for both broadband subscribers (+2 million) and penetration rates (+3.5 percent) than were available to them.

On the basis of an analysis done in preparation of recent testimony by one of the authors before the Senate Commerce Committee, allowing wireless operators to use an additional 200 MHz of radio spectrum would lower per-minute wireless charges by about 50 percent, from about 11.2¢ per minute (estimated under market conditions existing at year-end 2003) to 5.6¢ per minute and would lead subscribers to increase usage by 95 percent. This would generate \$77.4 billion per year in additional consumer surplus.²⁴⁸

Our discussion of U.S. spectrum regulation in Sections IV and V points out that the amount of spectrum available to commercial wireless networks is woefully inadequate, compared with both allocations in other countries and the extremely high value placed on additional bandwidth by telecommunications users *relative to* the values obtained currently in the use of alternative frequencies.

In this section, we estimate the economic impact of adding 200 MHz of spectrum to existing allocations to illustrate the magnitude of the benefits spectrum reform could bring to consumers. We have chosen an additional 200 MHz for our calculations, rather than the additional 438 MHz we recommend in Section V, for three reasons. First, we want to provide a conservative estimate of what spectrum reform might bring about. Second, according to industry sources, the additional 200 MHz is an allocation that the wireless industry has indicated would help complete nationwide roll-out of third-generation wireless services.²⁴⁹ Some wireless carriers have begun this transition, but they are severely constrained in terms of additional spectrum requirements. Third, an additional 200 MHz to wireless telecommunications licenses would bring the U.S. allocation up to the top end of the range now seen in the European Union. Note, however, that the use of this increment for analytical purposes does not imply that additional spectrum (beyond this increased bandwidth) would not benefit the U.S. economy.

Additional spectrum would affect the companies in the wireless market in a number of ways, not all of them positive. The wireless license auction itself would significantly reduce the price of bandwidth access from its current level—approximately \$1.65 per MHz per person, or about \$560 million per MHz for a nationwide license—which has been kept high, in part, through policy-induced scarcity. Existing licensees would likely see a decline in the value of their intangible assets. Although we would not expect these noncash losses initially to affect the cash flow of wireless operators, the resulting decline in net worth could have at least temporary negative effects on their credit availability²⁵⁰ and growth.

²⁴⁸ Thomas W. Hazlett, *Exit Strategies for the Digital TV Transition*, U.S. Senate Commerce Committee (June 9, 2004). See also Thomas W. Hazlett and Roberto Muñoz, *A Welfare Analysis of Spectrum Allocation Policy*, Manhattan Institute for Policy Research (June 10, 2004).

²⁴⁹ Telecommunications Industry Association, *TIA's 2004 Telecommunications Market Review of Forecast* (2004), at 152.

²⁵⁰ Loan agreements between lenders and business borrowers often contain negotiated parameters known as covenants, measuring the financial condition of the borrower, that specify the rights of either party in specific circumstances. One such covenant, the net worth test, states that in the event the ratio of a company's net worth to its total debt falls below a stated level, the lender will acquire specified additional rights, which may include the right to unilaterally reduce the size of the company's credit

The reduction in license costs would also produce dramatic positive effects on the operations of wireless providers. Firms would be able to acquire licenses at greatly reduced costs. This reduction in cost would lead to an increase in the after-tax return on capital for both new and existing firms and would induce wireless companies to undertake investments to increase the scale of their businesses.²⁵¹ The resulting increase in capacity would drive prices down and increase minutes of use.²⁵²

Estimating the impact additional spectrum availability would have on capital spending, however, is a difficult matter. We do not have adequate evidence from history to allow us to understand how reductions in license prices would affect the operating costs, credit availability, or operating and investment decisions of wireless companies, inputs we need to make a reliable point estimate of capital spending. By way of historical analogy, however, we can gain a rough estimate by using the experience from the most comparable past period—when new personal communications services licenses allocated 120 MHz of bandwidth in 1995–1996.

Table VI-F shows the capital spending history of the wireless sector.

facility and the right to charge additional fees or increase borrowing costs. These changes can reduce a company's ability to fund operations and growth.

²⁵¹ In addition to the decrease in license costs discussed here, we would expect a reduction in operating costs. One way that wireless companies accommodate increased numbers of customers when constrained by spectrum availability is to increase the number of towers in a given area. Doing so effectively divides the area into smaller cells, which effectively allows the firms to isolate customers' calls. Firms do this, however, at the cost of increased switching—transferring a mobile customer's call from cell to cell as he changes location. Increased bandwidth would allow the company to manage the same volume of calls with fewer towers and reduced switching-related expenditures.

²⁵² Thomas W. Hazlett, *Exit Strategies for the Digital TV Transition*, U.S. Senate Commerce Committee (June 9, 2004).

Table VI-F. Wireless Sector Capital Spending: 1988–2003

Year	Revenues	Capital Spending	% Change	Cumulative Capital Spending	% Change	Capital Expenditures / Revenues (%)
1988	\$1,959	\$1,039	—	\$3,274	—	53.0
1989	\$3,340	\$1,206	16.0	\$4,480	36.8	36.1
1990	\$4,548	\$1,801	49.4	\$6,281	40.2	39.6
1991	\$5,708	\$2,389	32.7	\$8,671	38.0	41.9
1992	\$7,822	\$2,590	8.4	\$11,262	29.9	33.1
1993	\$10,892	\$2,694	4.0	\$13,956	23.9	24.7
1994	\$14,229	\$4,982	84.9	\$18,938	35.7	35.0
1995	\$19,081	\$5,141	3.2	\$24,080	27.1	26.9
1996	\$23,634	\$8,493	65.2	\$32,573	35.3	35.9
1997	\$27,485	\$13,484	58.8	\$46,057	41.4	49.1
1998	\$33,133	\$14,484	7.4	\$60,542	31.4	43.7
1999	\$40,018	\$10,722	–26.0	\$71,264	17.7	26.8
2000	\$52,466	\$18,359	71.2	\$89,624	25.8	35.0
2001	\$65,316	\$15,405	–16.1	\$105,030	17.2	23.6
2002	\$76,508	\$21,892	42.1	\$126,922	20.8	28.6
2003	\$87,624	\$18,944	–13.5	\$145,866	14.9	21.6

Notes & Sources: Revenues and capital spending are in \$ millions. Cumulative capital spending does not equal the sum of capital spending because of rounding. Cellular Telecommunications and Internet Association, *CTIA's Semi-Annual Wireless Industry Survey, June 1985–December 2003* (2004); http://files.ctia.org/pdf/CTIA_Semiannual_Survey_YE2003.pdf.

Cellular phone systems were first licensed in the United States in 1984–1989. Two systems were permitted to operate in each market, and each license was allotted 25 MHz of radio spectrum. This duopoly existed until the mid-1990s. Then, the FCC distributed PCS licenses via auctions beginning in December 1994 and concluding in May 1996. The commission issued six licenses in each U.S. market: three allocated 30 MHz; three allocated 10 MHz. (Licenses could be aggregated, so long as total allocated spectrum did not rise above 45 MHz—a “spectrum cap” the FCC later lifted.)²⁵³

With PCS entry, the amount of spectrum available to commercial wireless networks approximately *tripled*. The historical bandwidth increase roughly corresponds to our recommendation of adding 200 MHz of additional spectrum today to increase the 189 MHz allocated (including the PCS C block) to 389 MHz—an increase of 106 percent. Although wireless carriers invested capital during the post-PCS licensing period to build out networks and to shift customers from analog to digital systems,²⁵⁴ we use this period as a rough model for the effects of increasing the availability of frequency. We focus on the changes in wireless investment just as PCS spectrum was being made available to market competitors in 1994–1998.

²⁵³ Note that only 90 MHz of this spectrum have been fully deployed; the remaining 30 MHz have remained embroiled in the legal controversy surrounding NextWave.

²⁵⁴ It appears clear, however, that the emergence of PCS competition considerably intensified the incentive for analog cellular systems to shift to digital technologies. So capital expenditures for digitization may be importantly, if indirectly, related to spectrum liberalization. It is clear that those expenditures are directly related to deregulation, as the 1988 FCC decision allowing carriers to offer digital services (analog had been mandated when cellular licenses were previously awarded) was a necessary trigger for this technology upgrade.

During the three-year period between the beginning of 1991 and the end of 1993, capital spending of wireless carriers remained steady, averaging \$2.6 billion per year.²⁵⁵ From 1994 through 1996, with the PCS license awards, capital spending rose to \$6.2 billion per year. Between 1997 and 1998 wireless carriers were deploying infrastructure to use the increased spectrum capacity, and capital spending doubled again to \$13.9 billion per year. Over the 1994–1998 period, capital spending averaged \$9.3 billion per year, or \$46.6 billion in aggregate. This implies that annual capital expenditures for wireless providers rose about \$6.7 billion in the wake of PCS entry.

To project the effects of making an additional 200 MHz of bandwidth available to service providers today, we assume the same increase in capital spending (in absolute dollar terms) that occurred following PCS licensing. As reported in Table VI-G, this results in a capital spending increase of \$33.8 billion over the next five years.

TOTAL CAPITAL SPENDING IMPACT

The multiplier effect causes increased capital spending in the telecommunications sector to affect the rest of the U.S. economy.²⁵⁶ Starting with the basic assumption that the economy has unused resources, such as unemployed workers, economic theory states that increasing purchases in one sector increases incomes for the people who work there, which begins a ripple effect. Higher incomes lead to more spending, and this new spending creates yet more jobs and incomes.

The government measures these multipliers for each sector, so that we can calculate the effect of each dollar of capital spending on the rest of the economy. Bureau of Economic Analysis multipliers suggest that each additional dollar of telecom capital spending leads to \$2.86 in extra output, while every \$1 million rise in telecommunications capital spending leads to 18.2 additional jobs.²⁵⁷ As shown in Table VI-G, the increases in telecom capital spending that would result from our proposed reforms would be likely to add \$167 billion in cumulative output by 2009 and increase employment by an average of more than 212,000 jobs.

²⁵⁵ The historical figures in this subsection refer to calculations based on data from the Cellular Telecommunications and Internet Association. See *CTIA's Semi-Annual Wireless Industry Survey (June 1985–December 2003)* (2004); http://files.ctia.org/pdf/CTIA_Semiannual_Survey_YE2003.pdf.

²⁵⁶ See, for example, RUDIGER DORNBUSCH AND STANLEY FISCHER, *MACROECONOMICS* (McGraw Hill, 1994), at 66.

²⁵⁷ Bureau of Economic Analysis, *Regional Input-Output Modeling System (RIMS II)* (2002).

Table VI-G. Impact of Reforms on Capital Spending, GDP, and Employment: 2005–2009

Capital Spending	2005	2006	2007	2008	2009	Total	Average
RBOC TELRIC	\$877	\$1,974	\$4,170	\$4,170	\$4,170	\$15,360	\$3,072
CLEC	\$540	\$540	\$540	\$540	\$540	\$2,700	\$540
RBOC DSL	\$239	\$438	\$607	\$808	\$975	\$3,067	\$613
Cable Modem	\$115	\$144	\$136	\$156	\$163	\$713	\$143
Cable Telephony	\$527	\$527	\$527	\$527	\$527	\$2,633	\$527
Wireless	\$2,424	\$2,584	\$5,935	\$10,926	\$11,927	\$33,796	\$6,759
Total	\$4,721	\$6,207	\$11,914	\$17,126	\$18,301	\$58,269	\$11,654
GDP	2005	2006	2007	2008	2009	Total	Average
RBOC TELRIC	\$2,508	\$5,648	\$11,927	\$11,927	\$11,927	\$43,937	\$8,787
CLEC	\$1,545	\$1,545	\$1,545	\$1,545	\$1,545	\$7,723	\$1,545
RBOC DSL	\$682	\$1,253	\$1,737	\$2,311	\$2,790	\$8,773	\$1,755
Cable Modem	\$329	\$411	\$388	\$447	\$466	\$2,040	\$408
Cable Telephony	\$1,506	\$1,506	\$1,506	\$1,506	\$1,506	\$7,531	\$1,506
Wireless	\$6,934	\$7,392	\$16,977	\$31,254	\$34,117	\$96,673	\$19,335
Total	\$13,504	\$17,754	\$34,079	\$48,990	\$52,350	\$166,677	\$33,335
Employment	2005	2006	2007	2008	2009	Total	Average
RBOC TELRIC	15,972	35,964	75,946	75,946	75,946	N/A	55,955
CLEC	9,836	9,836	9,836	9,836	9,836	N/A	9,836
RBOC DSL	4,344	7,982	11,058	14,718	17,764	N/A	11,173
Cable Modem	2,095	2,616	2,469	2,844	2,964	N/A	2,598
Cable Telephony	9,590	9,590	9,590	9,590	9,590	N/A	9,590
Wireless	44,152	47,067	108,104	199,014	217,247	N/A	123,117
Total	85,990	113,055	217,003	311,949	333,348	N/A	212,269

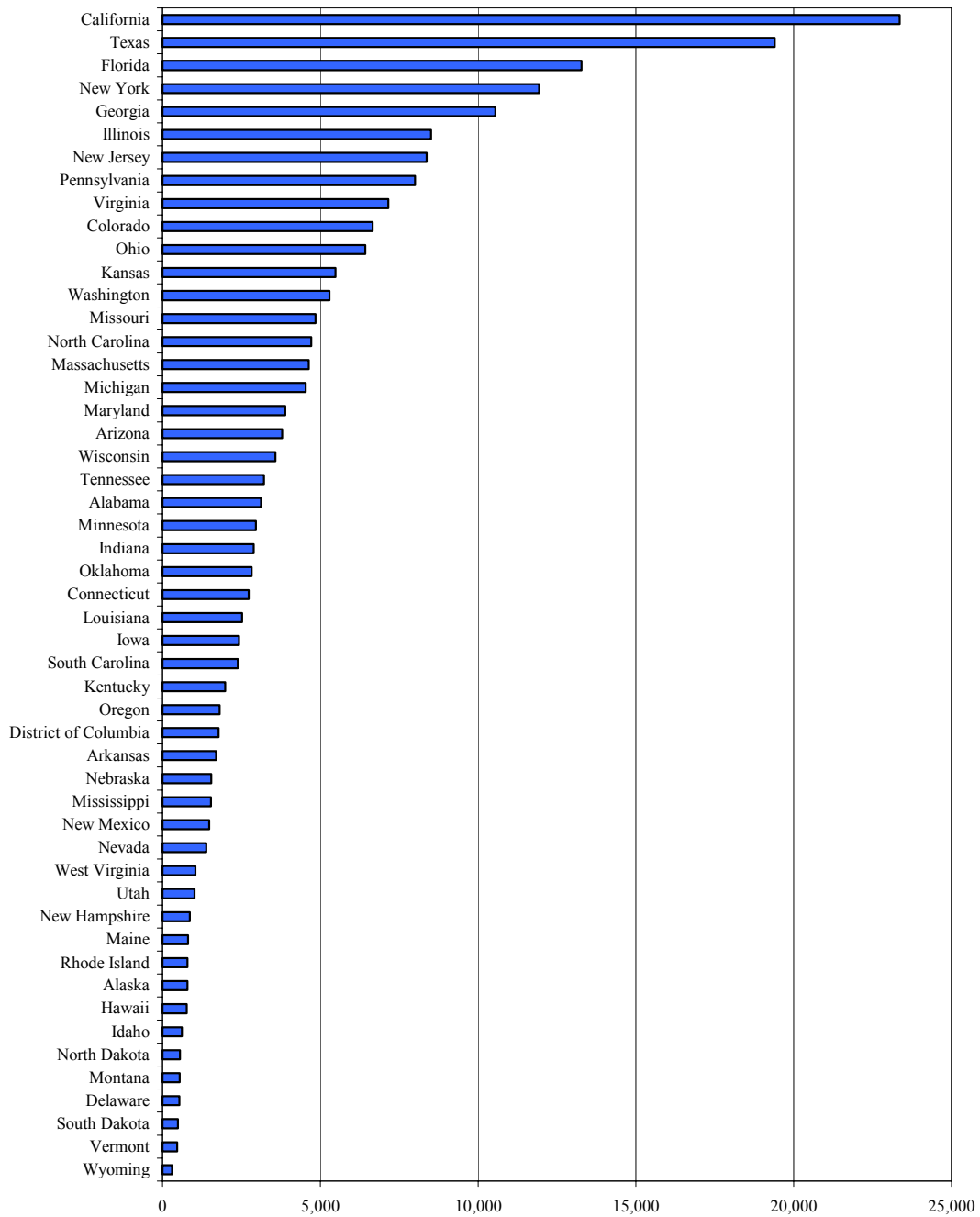
Notes & Source: Capital spending and GDP impacts are in \$ millions. Totals may not match the sum of each category because of rounding. Rutledge Capital calculations (May 2004).

REGIONAL EMPLOYMENT IMPACT OF PROPOSED REFORMS

The employment increases in the above analysis will be distributed across different state economies in rough proportion to the relative importance of telecommunications and telecommunications equipment employment in each state, as shown in the following estimates based on state employment data from the Bureau of Labor Statistics. See Figure VI-B and Table VI-H.²⁵⁸

²⁵⁸ Rutledge Capital calculations (May 2004). We have calculated the estimates in Figure VI-A for each state by multiplying the total increase in employment in Figure VI-H times the percentage of total telecommunications employment to total employment for that state. Data are from Bureau of Labor Statistics, year-end 2003; <http://www.bis.gov/labjava/outside.jsp?survey=sm>.

Figure VI-B. Average Additional Employment from Deregulation by State: 2005–2009



Source: Rutledge Capital calculations (May 2004). Data are from Bureau of Labor Statistics, year-end 2003;
<http://www.bls.gov/labjava/outside.jsp?survey=sm>.

Table VI-H. Average Additional Employment Impact by State Due to Reforms: 2005–2009

State	Telecom Jobs	State Percentage of Total U.S. Telecom Employment	Rutledge Estimates of Additional Jobs
Wyoming	1,570	0.14%	302
Vermont	2,429	0.22%	467
South Dakota	2,541	0.23%	489
Delaware	2,766	0.25%	532
Montana	2,840	0.26%	547
North Dakota	2,878	0.26%	554
Idaho	3,200	0.29%	616
Hawaii	4,000	0.36%	770
Alaska	4,100	0.37%	789
Rhode Island	4,111	0.37%	791
Maine	4,186	0.38%	805
New Hampshire	4,485	0.41%	863
Utah	5,300	0.48%	1,020
West Virginia	5,400	0.49%	1,039
Nevada	7,200	0.65%	1,385
New Mexico	7,700	0.70%	1,482
Mississippi	8,000	0.73%	1,539
Nebraska	8,035	0.73%	1,546
Arkansas	8,800	0.80%	1,693
District of Columbia	9,231	0.84%	1,776
Oregon	9,400	0.85%	1,809
Kentucky	10,300	0.93%	1,982
South Carolina	12,400	1.12%	2,386
Iowa	12,595	1.14%	2,424
Louisiana	13,100	1.19%	2,521
Connecticut	14,200	1.29%	2,732
Oklahoma	14,700	1.33%	2,829
Indiana	15,000	1.36%	2,886
Minnesota	15,400	1.40%	2,963
Alabama	16,200	1.47%	3,117
Tennessee	16,700	1.51%	3,213
Wisconsin	18,575	1.68%	3,574
Arizona	19,700	1.79%	3,791
Maryland	20,200	1.83%	3,887
Michigan	23,600	2.14%	4,541
Massachusetts	24,100	2.18%	4,637
North Carolina	24,500	2.22%	4,714
Missouri	25,200	2.28%	4,849
Washington	27,500	2.49%	5,292
Kansas	28,500	2.58%	5,484
Ohio	33,400	3.03%	6,427
Colorado	34,600	3.14%	6,658
Virginia	37,200	3.37%	7,158
Pennsylvania	41,600	3.77%	8,005
New Jersey	43,500	3.94%	8,370
Illinois	44,200	4.01%	8,505
Georgia	54,800	4.97%	10,545
New York	62,000	5.62%	11,930
Florida	69,000	6.25%	13,277
Texas	100,800	9.14%	19,396
California	121,400	11.00%	23,360
Total			212,269

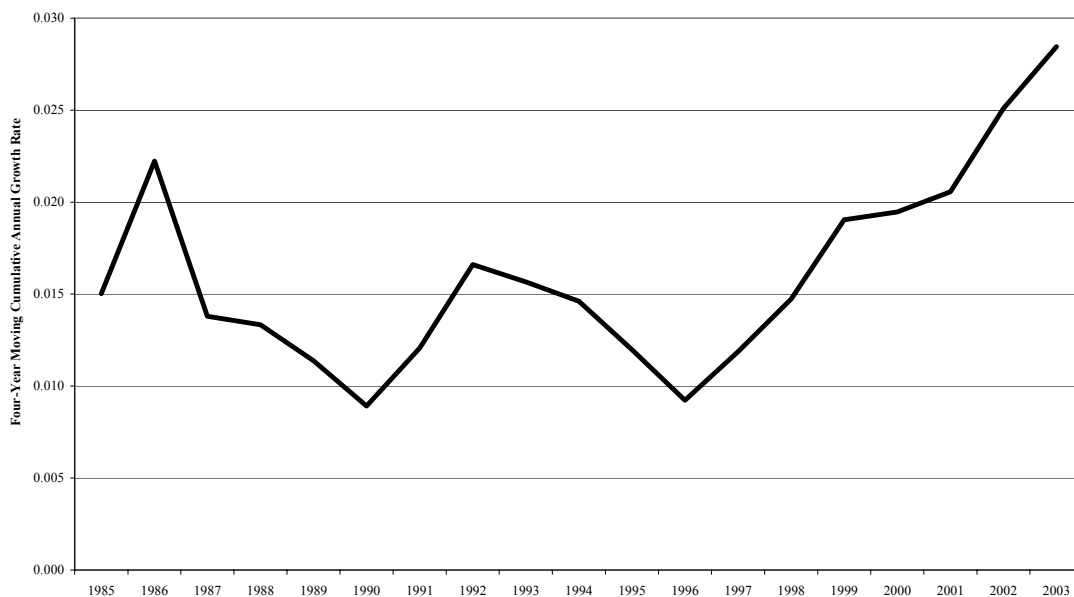
Note & Sources: The sum of Rutledge estimates of additional jobs does not equal total estimated additional jobs because of rounding. Rutledge Capital calculations (May 2004). Data are from Bureau of Labor Statistics, year-end 2003; <http://www.bls.gov/labjava/outside.jsp?survey=sm>.

THE PRODUCTIVITY CHANNEL

The most powerful and lasting impact of the proposed telecommunications reforms will occur indirectly through the impact of increased telecommunications investment on the productivity and competitiveness of American companies and American workers. Reforming regulations to encourage investment in new high-speed networks will both reduce costs and improve service quality for U.S.-based companies employing U.S. workers and will thus make them more effective competitors in international markets.

The period since 1995 has shown a remarkable increase in U.S. productivity growth. After increasing at just increased 1.4 percent per year between 1980 and 1995, labor productivity accelerated to 3.0 percent per year between 1995 and 2003, as shown in Figure VI-C.²⁵⁹

Figure VI-C. Productivity Growth (Output per Hour: Nonfarm Business): 1985–2003



Source: Employment, hours, and earnings are from Bureau of Labor Statistics, *Current Employment Statistics Survey (national)* (2004); <http://data.bls.gov/labjava/outside.jsp?survey=ce>.

A consensus has emerged among researchers that telecommunications and other information technology investments have been the principal drivers behind the extraordinary doubling of productivity growth of U.S. workers that has taken place since

²⁵⁹ Bureau of Labor Statistics, Major Sector Productivity and Costs Index (national) (2004); <http://data.bls.gov/servlet/SurveyOutputServlet?jrunsessionid=109054755847953820>.

1995²⁶⁰ and that investments in information and communications technology (ICT) may account for as much as three-fourths of overall labor productivity growth since 1995.²⁶¹

In a recent study, economists R. W. Ferguson, Jr., and W. L. Wascher examined four episodes of high productivity growth.²⁶² As Table VI-I shows, output per hour of work increased faster in 1995–2003 than in all but the 1917–1927 episode, which was fueled by the return of military personnel after World War I.²⁶³ The recent period of high productivity growth was characterized by unprecedented contributions from capital deepening (more capital per worker) and from labor composition (improved education, training, and skills per worker), as well as by a 1.0 percent per year of multifactor productivity growth, a term economists use to represent increases in output per unit of combined labor and capital inputs.

Multifactor productivity growth is often referred to as technological change. After examining each of the episodes of high productivity growth, Ferguson and Wascher conclude, “Although the productivity booms of the past century and a quarter obviously differed in many respects, each episode can readily be associated with the introduction of one or more prominent new technologies.”²⁶⁴ And, in trying to understand the 1995–2003 growth episode specifically, they write:

[T]he real drivers of the productivity gains in the 1990s were the related high-tech innovations of the 1970s and 1980s, including the personal computer, fiber optics, wireless communications, and the Internet. Many of the recent technological innovations have significantly altered the ways in which firms interact with their customers and have raised the productivity of the economy as a result.²⁶⁵

²⁶⁰ Dale W. Jorgenson, M. S. Ho, et al., *Lessons for Europe from the U.S. Growth Resurgence*, 25 J. POL’Y MODELING 453–70 (2003).

²⁶¹ S. Oliner and D. E. Sichel, *Information Technology and Productivity: Where Are We Now and Where Are We Going?* 25 J. POL’Y MODELING 477 (2003).

²⁶² R. W. Ferguson, Jr., and W. L. Wascher, *Distinguished Lecture on Economics in Government: Lessons from Past Productivity Booms*, 18 J. ECON. PERSP. 6 (2004).

²⁶³ Notes on data sources in Table VI-I are from *id.* at 6. Labor productivity is measured as output per hour worked in the nonfarm business sector. Multifactor productivity is defined as output per unit of combined labor and capital inputs. The contribution of capital deepening to labor productivity growth is the change in capital services per hour weighted by capital’s share of nominal output, and the contribution from labor composition is the change in the average quality of the work force (by education and experience); separate estimates for capital deepening and labor composition are available only beginning in 1948. Data from 1873 to 1948 are from JOHN W. KENDRICK, *PRODUCTIVITY TRENDS IN THE UNITED STATES* (Princeton Univ. Press, 1961). For the periods after 1948, data are from the Bureau of Labor Statistics. Labor productivity data from the BLS are available through 2003, whereas data on multifactor productivity, capital services, and labor composition are published only through 2001.

²⁶⁴ R. W. Ferguson, Jr., and W. L. Wascher, *Distinguished Lecture on Economics in Government: Lessons from Past Productivity Booms*, 18 J. ECON. PERSP. 7 (2004).

²⁶⁵ *Id.*

Further, they point out that past episodes of high productivity growth were typically fueled by the dispersion of “general purpose technologies,” with wide applicability, such as advances in communications.

Table VI-I. U.S. Productivity Growth
(Average Annual % Change, Nonfarm Business Sector): 1873–2003

Period	Labor Productivity	Multifactor Productivity	Contribution of Capital Deepening and Labor Composition
1873–2003	2.2	1.3	0.9
<i>Episode I</i>			
1873–1890	2.6	1.5	1.1
1890–1917	1.5	0.8	0.7
<i>Episode II</i>			
1917–1927	3.8	2.8	1
1927–1948	1.8	1.7	0.1
<i>Episode III</i>			
1948–1973	2.9	1.9	1
1973–1995	1.4	0.4	1
<i>Episode IV</i>			
1995–2003	3	1	1.6

Source: R. W. Ferguson, Jr., and W. L. Wascher, *Distinguished Lecture on Economic Government: Lessons from Past Productivity Booms*, 18 J. ECON. PERSP. 6 (2004).

The opportunity presented today stems from the fact that the 1995–2003 productivity boom has been primarily restricted to large companies and urban areas wired with high-speed telecommunications networks. The \$58 billion increase in capital spending that is projected to take place with our proposed regulatory reforms could bring the advantages of high-speed telecommunications networks to the small companies and small towns that produce more than half of GDP and account for three of every four new jobs.²⁶⁶ These investments could lead to a second wave of productivity growth of as much as 0.25 percent per year. As shown in Table VI-J, a quarter-point productivity growth increase would add \$93 billion per year to GDP, which amounts to \$467 billion in additional goods and services over the next five years.

²⁶⁶ Office of Advocacy, U.S. Small Business Association, *Small Business Economic Indicators* (2003); <http://www.sba.gov/advo/stats/sbei02.pdf>.

Table VI-J. Productivity Impact of Reform: 2005–2009

	2005	2006	2007	2008	2009	Total	Average
GDP without Reforms	\$11,827	\$12,182	\$12,548	\$12,924	\$13,312		
GDP Growth, No Reforms	3.5%	3.0%	3.0%	3.0%	3.0%		
Productivity Impact of Reforms	0.25%	0.25%	0.25%	0.25%	0.25%		
GDP Growth with Reforms	3.8%	3.3%	3.3%	3.3%	3.3%		
GDP with Reforms	\$11,856	\$12,241	\$12,639	\$13,050	\$13,474		
Additional GDP	\$29	\$59	\$91	\$126	\$162	\$467	\$93
Additional GDP as % of GDP	0.2%	0.5%	0.7%	1.0%	1.2%		
Cumulative GDP Impact	\$29	\$88	\$179	\$305	\$467		
Cumulative GDP Impact as % of GDP	0.2%	0.7%	1.4%	2.4%	3.5%		
Median Family Income, No Reforms	\$57,353	\$59,073	\$60,846	\$62,671	\$64,551		
Median Family Income with Reforms	\$57,491	\$59,360	\$61,289	\$63,281	\$65,338		
Additional Annual Income	\$139	\$286	\$443	\$610	\$786	\$2,265	\$453
Cumulative Income Impact	\$139	\$425	\$868	\$1,478	\$2,265		

Notes & Source: GDP is in \$ billions. Discrepancies in additional and cumulative impacts are due to rounding. Rutledge Capital calculations (May 2004).

TOTAL IMPACT OF REFORMS

The total impact of the telecommunications reforms recommended in this report is the sum of the demand effect of increased capital spending on network assets plus the supply effect of increased productivity growth. Table VI-K displays estimates of the total impact of reforms on GDP and employment over the next five years.

Table VI-K. Total Impact Estimates: 2005–2009

Total Impact	GDP	Employment
RBOC TELRIC	\$43,937	55,955
CLEC	\$7,723	9,836
RBOC DSL	\$8,773	11,173
Cable Modem	\$2,040	2,598
Cable Telephony	\$7,531	9,590
Wireless	\$96,673	123,117
Total Capital Expenditures Impact	\$166,677	212,269
Productivity Impact	\$467,036	0
Total Economic Impact	\$633,713	212,269

Note & Source: GDP is in \$ billions. Rutledge Capital calculations (May 2004).

In aggregate, our estimates suggest that telecommunications reform has the potential to increase average annual GDP by about \$126 billion per year over the next five years, which will add an estimated \$634 billion in goods and services. Employment will increase by an average of more than 212,000 jobs over the next five years. On the basis of recent estimates of the Congressional Budget Office, federal tax revenues will average 17.8 percent of GDP in 2005–2009.²⁶⁷ If this relationship applies to incremental

²⁶⁷ Congressional Budget Office, THE BUDGET AND ECONOMIC OUTLOOK: FISCAL YEARS 2005 TO 2014 (2004), at xiii.

GDP as well, our reforms would generate an additional \$113 billion in federal tax revenues over five years.

SUMMARY

We have described the state of the telecommunications industry and the current regulatory environment. We have outlined a set of regulatory reforms that would invigorate the sector and deliver large benefits to consumers, workers, and businesses throughout the U.S. economy, and we have created rough empirical estimates of the magnitude of the benefits that would follow such deregulatory reforms. See Table VI-L.

Table VI-L. Point Estimates of Economic Impacts from Proposed Regulatory Reforms

1. \$58 billion in new capital investment over five years.
2. Investment-led increases in economic growth that result in GDP increases of \$167 billion over five years.
3. Increased productivity, adding an additional \$467 billion to GDP.
4. A combined effect of both supply and demand channels totaling \$634 billion of additional goods and services, including \$113 billion in new tax revenues over five years.
5. An increase in average employment levels by more than 212,000.
6. Added consumer value from price competition and innovative new services.
7. Enhanced U.S. competitiveness in the global marketplace.
8. Accelerated rollout of new technologies and advanced networks in knowledge-based industries and applications.
9. Achievement of social goals such as universal service.

No change is easy to make. It will take forceful action by policymakers to effect these reforms. Each year of delay will cost the U.S. economy about \$12 billion of investment spending and about \$33 billion of GDP and will deter the creation of more than 212,000 jobs.

VII EPILOGUE

This report has investigated the regulatory morass that now dominates the telecommunications sector. Despite the failure of some competitive policies, the opportunity for marketplace rivalry in last-mile telecom service has never been brighter. The emergence of cable telephony, multiple national wireless carriers, and alternative broadband platforms means that the structure of a workably competitive market is already in place. With deregulatory policies that move aggressively to unleash the myriad opportunities for rival networks—including spectrum liberalization and clear, low-barrier rules for VoIP entrants—next-generation technologies will soon render legacy systems obsolete.²⁶⁸ Ironically, regulatory capital has been invested in ill-advised efforts to salvage and apportion the remnants of yesterday's marketplace, and this effort has undercut the efforts to build tomorrow's competitive arena.

*

We have written this study as actual regulatory events have been buffeting telecommunications markets. Federal rules governing network-sharing obligations for incumbent phone carriers, after a last-minute flurry of legal skirmishing,²⁶⁹ lapsed on June 15, 2004, pursuant to the decision of the U.S. Court of Appeals for the D.C. Circuit in March 2004. This policy switch has rocked the sector. The entire regime governing competitors' use of "unbundled elements" provided by legacy phone networks has officially ended. While interim measures will extend existing agreements for some months,²⁷⁰ a new regulatory structure is coming, and it may better encourage "facilities-based competition"—entrants building new networks.

²⁶⁸ "The Bells have largely won 'yesterday's' narrowband battle with T, MCIP and the CLECs, but we believe they are highly likely to lose the 'future' and larger competitive broadband and access wars with VoIP, cable, wireless, substitution, wireless broadband, and Broadband over Power lines (BPL)." Scott Cleland, *Muddier Bell Outlook: Deregulatory Pendulum Swing Has Peaked, and Present vs. Future Dichotomy*, PRECURSOR TELECOM & MEDIA RES. (Sept. 3, 2004).

²⁶⁹ The key issues involved whether the Bush Administration would appeal the March 2004 ruling by the U.S. Court of Appeals for the D.C. Circuit overturning UNE rules; on June 9, 2004, the administration announced that it would not. The U.S. Supreme Court was then petitioned to block the appellate ruling from taking effect. On June 14, the Court ruled that it would not do so. Stephen Labaton, *Administration Sides with Bells on Lease Discounts for Rivals*, N.Y. TIMES (June 9, 2004); Ben Charny, *Chief Justice Rejects Telecom Case*, CNET NEWS.COM (June 14, 2004); http://marketwatch-cnet.com.com/2102-1037_3-5233301.html?tag=st.util.print.

²⁷⁰ "[A]s a practical matter the current economic arrangements between the Bells and IXCs/CLECs will largely stay in place through the end of the year." Legg Mason, *Another FCC Rulemaking on Horizon (Oh Joy); IXC Decisions, Election, May Mitigate Impact*, TELECOM & MEDIA INSIDER (June 14, 2004), at 2.

Responses by leading telecommunications service providers to the collapse of UNE rules offer important information. Some firms relying on UNE-P resale announced sharp cutbacks in their retailing efforts; a notable example was AT&T's new policy to withdraw from some consumer telephone markets (both local and long-distance).²⁷¹ In some cases, wholesale agreements were struck between incumbent phone networks and CLECs, including a deal where MCI contracted to use the network facilities of Qwest.²⁷² Verizon announced agreements with CLECs Sterling Telecom and Granite Telecom;²⁷³ and SBC formed a relationship with Sage.²⁷⁴

But as CLECs abandoned UNE-P, they simultaneously embraced emerging networks. AT&T, the largest CLEC, teamed with McLeodUSA, a smaller one, to shift some of AT&T's over 4 million local customers to McLeod's network, which leases just the local loop from incumbent phone systems (UNE-L).²⁷⁵ AT&T claims that the venture is "a major step moving away from dependence on the Bells' UNE-P to facilities-based competition."²⁷⁶ To make the transition practical, both firms argue that regulatory certainty is needed—excellent advice in virtually any context.

In another revealing development, Covad, a data services provider that rents incumbents' local loops to deliver DSL service, has joined the Intel-led WiMAX Coalition developing wireless broadband networks. "WiMAX lets providers bypass phone companies for the 'last mile' connections to homes and businesses."²⁷⁷ The move to wireless is reported to be a function of just the economic incentives that counterproductive regulations have undermined:

Covad has relied on traditional copper lines leased from the Bells for its DSL service, using access that has been mandated for years.... But the Federal Communications Commission is phasing in regulations that will not require the Bells to share new lines with outside companies. Fearing that the Bells will charge exorbitant rates or refuse to share lines altogether, Covad and other companies that resell Internet access are looking for alternative technologies for their wholesale broadband. EarthLink has already made initial forays into the wireless market, recently launching a service with Digitalpath in Northern California.²⁷⁸

²⁷¹ AT&T, News Release, *AT&T Announces Second-Quarter 2004 Earning, Company to Stop Investing in Traditional Consumer Services; Concentrate Efforts on Business Markets* (July 22, 2004); <http://att.com/news/item/0,1847,13163,00.html>.

²⁷² MCI, News Release, *MCI and Qwest Reach Commercial Agreement for Wholesale Services* (May 31, 2004); <http://global.mci.com/news/news2.xml?newsid=10710&mode=long&lang=en&width=530&root=/&langlinks=off>.

²⁷³ *Verizon Entering into Commercial Agreement with a Wholesale Customer*, PR NEWswire (June 18, 2004); *Granite Telecom Moves Quickly for Verizon Rate Deal*, BOSTON BUS. J. (June 16, 2004).

²⁷⁴ SBC, Press Release, *SBC, Sage Telecom Reach Wholesale Telecom Service Agreement* (Apr. 3, 2004).

²⁷⁵ Susan Polyakova, *AT&T to Move to UNE-L If Regulatory Clarity Is Ensured*, COMMUN. DAILY (July 8, 2004).

²⁷⁶ *Id.*

²⁷⁷ Bill Wolfe, *New Long-Range Standard May Heat Up Wireless Internet*, COURIER-J. (Feb. 22, 2004).

²⁷⁸ Jim Hu, *Cable, DSL Face Threats*, CNET NEWS.COM (July 29, 2004); http://news.com.com/pdf/ne/2004/Digital_Agenda_Broadband.pdf.

The informed consensus is that, despite the decline of resellers, “wireless and VoIP (Voice over Internet Protocol) services, including over cable, will likely provide increasing competition.”²⁷⁹ These alternative technologies are advancing daily. Sprint recently entered agreements with Time Warner Cable and Mediacom to offer VoIP over cable infrastructure.²⁸⁰ AT&T has been active, announcing that it will offer Internet telephone service (VoIP) in the top 100 U.S. markets by September 30, 2004. As of July 1, 2004, the company announced that it had already begun service in seventy-two of these markets, spread across twenty-two states. An official statement by the company noted that although VoIP was “an exciting technology with great promise, it is not a complete substitute for traditional telephone service” because less than one-third of U.S. households have high-speed connections. But the company optimistically notes: “VoIP application might just be the ‘value-add’ that consumers are seeking to justify their investment in broadband.”²⁸¹ That strategy is the motivation for AT&T’s recently announced collaboration with Adelphia, the nation’s fifth largest cable operator, to market VoIP over cable modems.²⁸²

This is a subtle but powerful truth. Regulators have offered new phone competitors discounts to use existing infrastructure, and retail price competition has developed. But those discounts are due to the cost-accounting model bureaucrats have chosen, not to market efficiencies. More ominously, exciting new technologies have been undercut. To the degree that policies have lowered prices for plain old telephone service, they have stunted the growth of far more powerful networks that deliver voice, video, and high-speed data. Taking away the artificial prop beneath one form of competition can now unleash far more productive market forces.

As VoIP service is added to high-speed Internet access, tens of millions of U.S. homes will subscribe if policymakers resist the temptation to distort price signals. Few things are more expensive than a service made cheap by government subsidies or industrial policy. In local telecommunications service, we see both.

Fortuitous events now yield the opportunity to escape a regime that discourages network growth. We have outlined a broad series of reforms to make this happen by focusing on rules that allow new technologies and market-based competition to eclipse administrative combat over the “forced marriages” of network-sharing mandates. These skirmishes are socially unproductive and ought to be rendered obsolete. With recent legal and regulatory developments shifting in this direction, the possibility of proconsumer reform looms.

²⁷⁹ Legg Mason, Memorandum, *Bells on Roll, but FCC Fights Affect Speed, Scope of Wholesale/UNE Relief* (June 30, 2004), at 1.

²⁸⁰ Laura Warner, Carrie Hart, and Brian Kraft, *MCCC Announces VOIP Agreement with Sprint*, CREDIT SUISSE FIRST BOSTON EQUITY RESEARCH (Aug. 24, 2004).

²⁸¹ Wireline Section, COMMUN. DAILY (July 1, 2004).

²⁸² “AT&T also will be able to facilitate new cable modem service orders when customers call to inquire about CallVantage.” Karen Brown, *Adelphia Taps AT&T for VoIP Service*, CED BROADBAND DIRECT NEWS (Sept. 1, 2004); <http://www.cedmagazine.com/cedailydirect/2004/0904/cedaily040901.htm>.

Revealingly, the lapse of unbundling obligations did not stimulate instant investor enthusiasm for Bell company shares, which hardly budged.²⁸³ This was no surprise to analysts who have largely touted the theme: “Bell Legal Victory: Winning the Battle, but Losing the War.”²⁸⁴ A sober assessment of the marketplace leads to the conclusion that the incumbents’ legacy networks are better off with fewer unbundling obligations, but that overall the regulatory relief is “too little, too late, and technology has replaced regulation as the main driver of the competitive threat to the Bells.”²⁸⁵ Incumbent networks will fade into history unless they can convince capital markets to parlay their existing assets into advanced information systems. That immerses the Bells in hostile competitive waters, where they are confronted by new risks.

The most vital of these will be posed by the “category killers,” infrastructures that disrupt seemingly tranquil markets by bursting in from somewhere else. Millions of U.S. wireless households have dropped their fixed-line phones altogether, and millions more buy service from an adjacent wire owned by the cable company. With VoIP riding so cleanly on the cable modem or DSL connection, millions more will soon follow.

Head-to-head competition is vital, but it often makes a diagonal entrance. The success of satellite TV triggered a chain reaction that has invigorated the broadband race between cable modems and DSL. And today’s satellite-phone alliances are responding to the cable operators’ “triple threat.” Now, a price war is at hand, with Cablevision, a large New York-based cable operator, offering over 140 video and audio channels, high-speed Internet access, and local and long-distance calling for \$90 a month.²⁸⁶

Additional wireless networks—fixed, mobile, and satellite—would be empowered were government regulators to allocate the necessary bandwidth to licensees. VoIP applications would extend further, and at lower prices, if government were to craft simple policies with minimal regulation to induce needed investment. But instead of acting decisively, a recent FCC VoIP proposal “is so vague it is impossible to provide a regulatory analysis of its impact, according to the U.S. Small Business Administration.”²⁸⁷ The authors of this study hope that the reforms offered herein

²⁸³ Between June 9, 2004 (when the Bush Administration announced that it would not appeal the opinion of the U.S. Court of Appeals for the D.C. District to the U.S. Supreme Court) and June 15, 2004 (when the UNE rules were allowed to lapse after the U.S. Supreme Court turned down a stay the preceding day), the legal battle to save the existing UNE rules was lost. Share prices of the three highly capitalized Bell operating companies (BellSouth, SBC, and Verizon) from market opening on June 1 to close on June 21, a period framing the regulatory period, reveal virtually no movement relative to the S&P 500 Index. (Equally weighted returns, relative to the market, are 0.13 percent for the three companies over the three-week period.)

²⁸⁴ Scott Cleland, *Bell Legal Victory: Winning the Battle, But Losing the War*, PRECURSOR TELECOM & MEDIA RES. (June 18, 2004).

²⁸⁵ *Id.*

²⁸⁶ *CableVision Rolls Out Internet/Cable/Phone Package*, CONSUMERAFFAIRS.COM (June 21, 2004); http://www.consumeraffairs.com/news04/cablevision_bundle.html; Cablevision Web site (Aug. 2, 2004); http://www.optimum.com/index.jhtml?pageType=ooo_landing. Approximately 45 of these over 140 channels are audio.

²⁸⁷ Michael Feazel, Brigitte Greenberg, and Dinesh Kumar, *SBA Says FCC May Have to Launch Supplemental VoIP Rulemaking*, COMMUN. DAILY (June 2, 2004).

encourage policymakers to end the conflicting signals and instead spur policies that unambiguously embrace economic incentives to create and enhance the advanced telecommunications networks that American consumers and businesses demand.

APPENDIX I LIST OF CONTACTS

We would like to thank the following individuals we spoke with in researching this report:

Terry Barnich, president, New Paradigm Resources Group

Timm Bechtler, vice president, Broadband and Wireless Equipment, Legg Mason Wood Walker, Inc.

Robert Calaff, director, Federal Policy, T-Mobile

Dallas Clement, senior vice president, Strategy and Development, Cox Communications

Michele Farquar, partner, Hogan and Hartson

Robert Gensler, manager, T. Rowe Price Global Technology Fund

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Ed Thomas, chief, Office of Engineering and Technology, Federal Communications Commission

Lara Warner, Credit Suisse First Boston

APPENDIX II SELECTED ANALYST QUOTATIONS

Dennis Saputo et al., *The Far-Reaching Impact of UNE-P Regulation*, MOODY'S INVESTORS SERV. (Oct. 2003), at 1:

"Moody's believes that the FCC's recently released network unbundling order will have a negative credit impact on the industry's wireline operators. Retail line losses derived from Unbundled Network Element Platforms (UNE-P), have become a critical problem for some incumbent local exchange carriers (ILECs).... Moody's believes they will seek to counter the resulting revenue and cash flow loss with expanded service package offerings, which will likely require modest capital investment, aggressive marketing campaigns and discounted pricing to win and retain customer loyalty."

Scott Cleland et al., *FCC Decision Accelerates Disinvestment and Shifts Equipment Demand*, Precursor Group (Mar. 4, 2003) (emphasis omitted):

"The FCC decision unleashes two countervailing forces affecting telecom equipment going forward. The first force is the acceleration of telecom disinvestment through the profit-killing invigoration and extension of UNE-P resale competition. More UNE-P increasingly will pressure equipment spending because capex remains the least painful way to cut costs and protect profits short-term. [Lucent] and [Nortel] have the largest amount of revenue at risk to further Bell capex cuts. The second force is the new and very heavy regulatory bias favoring fiber/packet technology over copper/circuit technology. [Corning] and [Cisco] are the FCC's new 'chosen ones.'"

Telecommunications Industry Association Letter to the Honorable Michael K. Powell, CC Docket No. 01-338 (Nov. 25, 2002), at 2:

"Capital spending in the wireline segment of the industry meanwhile has been falling steadily over the past few years. CSFB reports that wireline carriers spent \$113 billion in 2000, \$93 billion in 2001 and will spend only an estimated \$49 billion in 2002. Deutsche Bank analysts have reduced their view of 2003 capital spending by the telephone carriers to a 15 percent year-over-year decline, instead of an expected decrease of 5 percent to 10 percent. The Precursor Group estimates that the capex reductions could be as high as 30 percent for 2003 compared with 2002 figures."

Dennis Saputo et al., *The Far-Reaching Impact of UNE-P Regulation*, MOODY'S INVESTORS SERV. (Oct. 2003), at 1:

"We conclude that the [Triennial Review Order] has created more downside risk to RBOC ratings than it has upside potential for the CLECs."

Scott Cleland, *Precursor Returning to Negative Telecom Outlook As FCC Invigorates UNE-P*, Precursor Group (Feb. 24, 2003) (emphasis omitted):

“More capex cuts. Other than large job cuts, additional capex cuts are the only major cost cutting options available to large telecoms.”

Fulcrum Global Partners, *Wireline Communications: Thoughts on FCC Order* (Feb. 25, 2003):

“We believe the local telephone companies (the RBOCs) will continue to cut capital expenditure budgets in the coming year in an attempt to preserve long-term financial flexibility.”

Scott Cleland, *Investor Preview of FCC’s Triennial Review Decision*, Precursor Group (Jan. 27, 2003):

“UNE-P has a disproportionate effect on the sector’s capex because the local telcos comprise over two-thirds of potential U.S. demand. Since the Bells have exceptionally high fixed-cost business models, slashing variable capex is the only way, other than mass layoffs, to cope with UNE-P arbitrage. Precursor expects cauterizing the UNE-P revenue hemorrhage will stabilize capex in the short-term and enable it to grow later in 2003 and into 2004 as the Bells invest to reduce their network costs.”

Kevin Fitchard, *Verizon Pledges Massive DSL Investment*, WIRELESS REV. (Mar. 19, 2003); http://wirelessreview.com/ar/telecom_verizon_pledges_massive/:

“On the heels of the FCC’s triennial review of unbundled network elements (UNEs), Verizon today announced a major broadband initiative designed to make 10 million more access lines DSL-capable by the end of the year and to deploy fiber to the home starting in 2004. The RBOC will deploy DSL equipment in an estimated 3500 to 4000 fiber-connected remote terminals and an additional 1000 central offices. The overall outlay is expected to make DSL available to 46 million, or 80%, of Verizon’s lines.... Vice Chairman Lawrence Babbio said Verizon would be shifting funds in its estimated \$12 to \$13 billion capital expense (capex) budget to focus on broadband. Babbio said the initiative was fueled by last month’s FCC ruling granting the ILECs broadband relief and by advances in DSL and hybrid fiber technologies allowing Verizon to extend the reach of its access networks.”

Frost & Sullivan, *U.S. Wholesale UNE-P Market Insight* (2003), at 1-24:

“For now, we would expect that competitive carriers will continue to utilize UNE-P for the key reason that it is still the easiest way for competitive carriers to get into the local markets without making large capital investments.”

Report: CLECs Remain Comfortable Riding the UNE-P Train, 23 FIBER OPTICS NEWS (June 23, 2003):

“Are ‘artificially low’ UNE-P rates contributing to the lack of investment in new network infrastructure? According to research performed by economist Stephen Pociask,

president of IT-centric TeleNomic Research, the answer is a resounding ‘yes.’ Pociask's just-released findings ... say in part that the availability of UNE-Ps means CLECs have no incentive to transition from leasing ILEC networks to building their own, because leasing remains cheaper than building. ... ‘If low UNE and UNE-P prices were intended to save consumers money, they have been a dismal failure,’ he says. ‘Because UNE-P regulations are usurping market forces and harming facility-based competitive and incumbent carriers, these regulations have created more harm than good for consumers.’ This paper finds the annual economic costs of UNE-P regulations to be approximately \$101 per household. Said differently, real household income would have been \$101 higher, if telecommunications investment had not been stifled by UNE regulations. In contrast, the annual benefits of competition have been estimated to be \$1.2 billion—\$11.41 per household—basically from lower local telephone prices.”

Legg Mason, *FCC Extends Uncertainty; Stocks Appear Near Valuation Floor* (Feb. 21, 2003):

“In our view, the FCC’s decision yesterday on the Triennial Review hurts the majority of the telecommunications industry by extending the uncertainty related to key investment issues.”

J. Halpern et al., *RBOCs: Upgrading BellSouth on Valuation; FCC’s Rulemaking a Mixed Bag—Group Valuations and Yields Compelling But with Few Catalysts*, BERNSTEIN RESEARCH CALL (Feb. 21, 2003):

“Overall the FCC’s ‘action’ was a setback for the RBOCs relative to investor expectations and in its not answering key questions, is driving general uncertainty. As a result we anticipate continued volatility in the trading of all major players though see the market’s reaction as overdone and a return to the negativity plaguing sentiment at the end of the summer of 2002 (when uncertainty was far greater and the valuations only slightly lower).”

Frost & Sullivan, *U.S. Wholesale UNE-P Market Insight* (2003), at 1-17:

“As in many industries, uncertainty about future events tends to result in a reluctance to make significant investments into capital and labor. With this decision to not force unbundling of packet switching elements, incumbent carriers have greater certainty as to where there [*sic*] market is heading. This should lead to greater investments in broadband equipment and marketing efforts for broadband services and should lead to greater certainty of what needs to be done to succeed in that market.”

Regulatory Uncertainty Could Squeeze \$16 Billion from Communications Market, PR NEWswire (June 12, 2003):

“Continued uncertainty resulting from the Federal Communications Commission’s ‘triennial review’ order is sidelining billions of dollars of investment in the communications industry and costing thousands of jobs. ... In a study of cable

overbuilders, The Eastern Management Group found that companies are having and will continue to have trouble competing with UNE-P competitors that can enter their markets without any capital investment and enjoy instant EBITDA margins of up to 50 percent. ... In the 14 markets alone, UNE-P competition is expected to have decreased the size of the overbuilder market by a total of \$514 million over three years by the end of 2004. Nationwide, the loss would come to \$16 billion over the same period. The Eastern Management Group also conducted a qualitative study of new telecommunications carriers, infrastructure providers and investors to examine the financial impact of the FCC order on individual companies. The result: the uncertainty created by the FCC's decision to transfer regulatory authority to 51 separate jurisdictions will inhibit investment, economic growth and job creation."

States Struggle to Untangle Effects of Court's TRO Ruling, COMMUNICATIONS DAILY (Mar. 4, 2004):

"The practical result of the ruling Tues. by the U.S. Appeals Court, D.C., that vacated much of the FCC's UNE order 'remains very much in doubt,' Legg Mason analysts said in a research report Wed. ... Medley Global Advisors concluded that 'the battle over the fate of unbundled switching is far from over and the course the FCC will take going forward is far from certain.' Medley said in a report it expected Congress to weigh in through hearings. 'Regardless of what action the Commission takes, UNE-P will probably not be eliminated from the market any time soon,' the report said. Access to UNEs is written into interconnection contracts 'which are legally binding so regulatory uncertainty for the Bells will probably remain at least until next year,' it said. ... 'Neither of our companies stands to benefit from continued uncertainty in the industry,' [SBC Chariman] Whitacre said: 'It is up to all of us to close this long, costly and debilitating chapter in our industry's history.'"

Todd Rosenbluth, *For Whom the Bells Toll; The Baby Bells Have Won a Legal Battle in the Ongoing War over Access Charges, but S&P Doesn't Think Their Problems Will End There*, BUSINESSWEEK ONLINE (Mar. 4, 2004):

"The Baby Bells ... which have faced a multitude of operational challenges in the past six months, received some relatively good news on Mar. 2. In the latest development in their long-running tussle with competitors over the access fees charged for traffic on the Bells' local phone network, the District of Columbia Circuit Court ruled to vacate parts of the Federal Communications Commission's rules enabling wholesale access by competitors ... to the Bells' network through the unbundled network element platform (UNE-P). The court remanded the issue back to the agency.

... While the ruling appears to be a modest victory for the Baby Bells, we at Standard & Poor's Equity Research Group are keeping our negative outlook on the group, also known as the Regional Bell Operating Companies (RBOCs). We believe that the legal tussle over the wholesale-access issue is far from over. We expect additional appeals and stays in the case."

Scott Cleland, *Bell Legal Victory: Winning the Battle but Losing the War*, Precursor Advisors (June 18, 2004) (emphasis omitted):

“The Bells clearly won an important legal battle, they are still losing the overall competitive war, which is ultimately what matters. ... Precursor believes competitive pressure on the Bells will greatly intensify, and that it will change in form from a nettlesome battle over the terms of government mandated resale competition to a franchise-threatening war of intermodal access competition from cable, wireless, Wi-Fi/ wireless broadband, and Broadband over Powerlines. ... The big takeaway is that regulation is no longer the driving force behind competition—technology is. ’96–’00 was the Telecom Act–CLEC facilities competitive era. ’00–present has been the FCC UNE-P competitive resale era. Precursor believes ’04 going forward increasingly will become the SIP/VoIP era, one that will enable emerging intermodal facilities competition from cable operators, power companies and wireless/wireless broadband providers.”

Rudy Baca, *1.9GHz Spectrum Auction Unlikely to Facilitate Wireless Transition to Broadband*, Precursor Advisors (June 18, 2004) (emphasis omitted):

“Precursor believes that the auction of reclaimed NextWave (and other returned) licenses in the 1.9GHz band is unlikely to ease significantly the challenges facing the wireless sector in transitioning to next generation wireless broadband (WBB). Although 1.9GHz is prime unencumbered spectrum in key markets, political considerations and timing constraints are likely to result in the retention of ‘Designated Entity’ rules which restrict national carriers from bidding *directly* on spectrum, thereby artificially increasing their costs of acquiring this key resource, delaying deployment, and minimizing its efficacy for higher data rate services.”

George Reed-Dellinger, *TeleMedia Update*, WASHINGTON ANALYSIS (June 15, 2004) (emphasis omitted):

“[T]he need for restructuring [telephone rates] has been mitigated by the policy announced by the Federal Communications Commission (FCC) related to the handling of VoIP (voice over Internet protocol) calls. Specifically, the FCC will require access charges to be paid by VoIP customers for calls transported over the public switched network, reducing the hemorrhaging of the BOCs that would have resulted from the extension of the MCI ... and AT&T ... routing schemes into the VoIP world. Absent these routing schemes, which MCI and AT&T use to avoid paying access charges, the need to restructure (eliminate) the access charge regime has lessened. Moreover, it may increasingly appear to the BOCs that they have their traditional competitors on the ropes and need not make compromises to gain support for a comprehensive rate-restructuring plan.”

APPENDIX III

REVIEW OF STUDIES CONCERNING THE ECONOMIC EFFECTS OF TELECOMMUNICATIONS REGULATION

1. *Cambridge Strategic Management Group (2002)*²⁸⁸

This study uses an accounting approach with individual company survey data. The authors find that TELRIC-based pricing both raises the cost and reduces the revenue to ILECs that may be considering the deployment of fiber to the home. They calculate the reduction in the percentage of households for which it would be profitable to make this deployment under different regulatory regimes. They estimate that ILECs might spend an additional \$39 billion over ten years if they were sure they would not have to make their lines available to competitors at unprofitable rates.

2. *Crandall, Ingraham, and Singer (2004)*²⁸⁹

This study uses a factor-demand approach to model CLEC investment decisions to test the “stepping stone” theory that low UNE rates encourage CLEC investment. The authors use cross-state regressions to estimate the output-constant elasticity of substitution between facility-based investment and UNE leasing. They find that “facilities-based line growth relative to UNE growth was faster in states where the cost of UNEs was higher relative to the cost of facilities-based lines.”²⁹⁰ Their estimates, based on a number of different specifications, indicate that each 1 percent increase in the price of leasing a UNE line, relative to the cost of adding a facilities-based line, is associated with an increase of facilities-based lines, relative to leased lines, of between 0.5 and 1.6 percent.

The authors conclude that “the best argument for maintaining the current unbundling regime—namely, that low UNE rates encourage CLECs to rent at first, and then build facilities once they have some market experience—is not supported by the data.”²⁹¹

3. *Crandall and Jackson (2003)*²⁹²

This study attempts to estimate the eventual economic benefits of broadband technology. The authors use two approaches. First, they estimate the addition to

²⁸⁸ *Assessing the Impact of Regulation on Deployment of Fiber to the Home*, 5 CAMBRIDGE STRATEGIC MANAGEMENT GROUP (Apr. 2002).

²⁸⁹ Robert W. Crandall, Allan T. Ingraham, and Hal J. Singer, *Do Unbundling Policies Discourage CLEC Facilities-Based Investment?* 4 TOPICS IN ECON. ANALYSIS & POL’Y 1 (2004).

²⁹⁰ *Id.*

²⁹¹ *Id.*

²⁹² ROBERT W. CRANDALL AND CHARLES L. JACKSON, *THE \$500 BILLION OPPORTUNITY: THE POTENTIAL ECONOMIC BENEFIT OF WIDESPREAD DIFFUSION OF BROADBAND INTERNET ACCESS. DOWN TO THE WIRE: STUDIES IN THE DIFFUSION AND REGULATION OF TELECOMMUNICATIONS TECHNOLOGIES* (Nova Science Press, 2003).

consumer welfare, or consumer surplus, which would accompany ubiquitous high-speed access available for \$40 per month per household. Second, they identify specific benefits that high-speed access can ultimately provide consumers, such as reduced shopping time, improved entertainment choices, enhanced telephone services, and improved healthcare.

Using estimates of the price elasticity of demand for broadband services of -1.0 and -1.5 , the authors estimate total consumer benefits between \$297 billion and \$460 billion per year, comparable in size to the range of estimates of \$272 billion to \$520 billion per year for the alternative estimates of the consumer benefits deriving from specific activities. Accelerating the adoption of broadband could increase the present value of consumer benefits by a further \$500 billion.

4. Crandall, Jackson, and Singer (2003)²⁹³

The purpose of this study is to estimate the impact of universal broadband adoption on consumers and on investment, employment, and economic growth. The authors conclude that ubiquitous (95 percent of households) adoption of current-generation (DSL and cable modem) technologies would generate \$63.6 billion in capital expenditures (\$0.97 billion per year on residential DSL and \$2.38 billion per year on residential cable broadband for a total of \$3.35 billion per year) over the next nineteen years. This would result in a cumulative increase in GDP of \$179.7 billion and an additional 61,000 jobs.

The impact of more advanced technologies, such as fiber to the home, would generate an additional net \$82.8 billion in capital spending (\$4.34 billion per year) for a total of \$146.4 billion in new capital spending over nineteen years, which would result in a total of 140,000 new jobs. More rapid adoption would increase capital spending by \$164.7 billion over ten years and increase employment by 540,000 jobs by 2010. The authors estimate that broadband adoption could generate up to 664,000 jobs in upstream consumer industries, such as education, healthcare, and consumer electronics, which would bring total job creation up to 1.2 million. Finally, the authors estimate that universal broadband could generate between \$72 billion and \$300 billion per year in benefits to consumers by 2021, at which time they assume broadband service to be ubiquitous. This compares with their estimates of consumer surplus in 2001–2002 of between \$6.5 billion and \$9.5 billion per year.

²⁹³ Robert W. Crandall, Charles L. Jackson, and Hal J. Singer, *The Effect of Ubiquitous Broadband Absorption on Investment, Jobs, and the U.S. Economy*, Criterion Economics New Millennium Research Council (2003).

5. *Crandall and Singer (2003)*²⁹⁴

This study provides a critique of a Phoenix Center study²⁹⁵ that argued that the Telecommunications Act of 1996 added 92,000 wireline telecommunications jobs and reviews evidence on the impact of the 1996 act on capital spending, employment, and productivity in the telecommunications sector. Crandall and Singer conclude that CLECs have not added to output, that the growth of CLECs has not brought about a reduction in prices, and that telecommunications sector productivity growth has actually declined from 5.5 percent per year between 1990 and 1996 to 4.9 percent per year between 1996 and 2001.

The authors review the literature on the determinants of ILEC investment. They conclude that each additional line lost by an RBOC to a leased line reduces RBOC revenues by an average of \$18.50, earnings by \$15.50, and operating cash flow by \$10.00, all on a per-month basis. They report regression results based on data from 1996 to 2002 that suggest that RBOC capital spending decreases by \$0.81 for each dollar decline in operating cash flow. This implies that each line switched from an RBOC to a leased line results in a reduction in capital spending of \$8.11 per year.

Using BEA multiplier estimates, the authors conclude that each 1 million lines transferred from an RBOC to leased lines reduces employment by 1,300 jobs. Based on the roughly 10 million UNE-P lines in December 2002, this implies 13,000 lost jobs. As a result, the authors conclude, much of the \$60 billion invested by CLECs has been wasted.

6. *Eisenach and Lenard (2003)*²⁹⁶

This study surveys the existing literature on the effects of UNE regulations on telecommunications capital investment and concludes that the reform of current regulations would increase investment of ILECs, CLECS, and cable operators in telecommunications network assets by between \$5.37 billion and \$12.74 billion per year. The authors then estimate the impact of increased investment on output and jobs and conclude that UNE reform would increase GDP by between \$71.5 billion and \$169.5 billion and increase employment by between 470,000 and 1,115,000 jobs over five years, without considering any additional benefits the increased capital spending would have on productivity growth or equity values.

²⁹⁴ Robert W. Crandall and Hal J. Singer, *An Accurate Scorecard of the Telecommunications Act of 1996: Rejoinder to the Phoenix Center Study No. 7*, Criterion Economics New Millennium Research Council (2003).

²⁹⁵ *The Positive Effects of Competition on Employment in the Telecommunications Industry*, PHOENIX CENTER POLICY BULL. No. 7 (2003).

²⁹⁶ Jeffrey A. Eisenach and Thomas M. Lenard, *Telecom Deregulation and the Economy: The Impact of "UNE-P" on Jobs, Investment, and Growth*, 10 PROGRESS AND FREEDOM FOUNDATION (2003).

7. *Eisenach, Lowengrub, and Miller (2003)*²⁹⁷

This study analyzes the impact of three separate regulatory events on the market values of companies in the telecommunications sector. The first was FCC Chairman Michael Powell's announcement on January 29, 2002, that the FCC would hold a vote concerning new unbundling rules, which investors interpreted as increasing the probability that UNE-P rules would be relaxed. The second was the FCC's announcement on February 10, 2003, that the vote would be delayed, which was interpreted as a reversal of the earlier announcement. The third was the FCC's vote on February 20, 2003, to approve new unbundling requirements, which dramatically decreased incentives for both incumbents and CLECs to invest in new facilities.²⁹⁸ The authors conclude that the cumulative effects of the FCC announcements reduced the market value of the incumbent phone carriers by 12 percent, or \$19.2 billion, indicating that the market interpreted the new rules as a disincentive to invest, which would reduce the present value of the firms' future capital expenditures by approximately \$16.3 billion.

8. *Eisner and Lehman (2001)*²⁹⁹

This study looks at the effect of UNE prices on CLEC facilities-based entry. The authors conclude that each \$1 increase in the statewide average UNE rate results in 3,741 new CLEC facilities-based lines.

9. *Haring, Rettle, Rohlfs, and Shooshan (2002)*³⁰⁰

This study uses regression analysis of cross-section data to estimate the significance of factors determining RBOC investment. The authors find that every dollar added to the price that RBOCs can charge for leasing a loop adds \$18 to net plant and equipment of the ILECs. Spending to achieve this level would come to \$30 billion over three years.

10. *Haring and Rohlfs (2002)*³⁰¹

The authors argue that the effect of unbundling requirements is to expropriate a valuable real option from ILECs and bestow it on competitors. The reason is that unbundling policies inherently diminish the upside potential of risky investments but do not afford comparable protection on the downside. Thereby, unbundling requirements

²⁹⁷ Jeffrey A. Eisenach, P. Lowengrub, and James C. Miller III, *Economic Implications of the FCC's UNE Decision: An Event Analysis Study*, Capanalysis Group (2003).

²⁹⁸ Federal Communications Commission, Press Release, *FCC Adopts New Rules for Network Unbundling Obligations of Incumbent Local Phone Carriers* (2003).

²⁹⁹ James Eisner and Dale E. Lehman, *Regulatory Behavior and Competitive Entry*, 14th Annual Western Conference, Center for Research in Regulated Industries (June 28, 2001).

³⁰⁰ John Haring, M. L. Rettle, Jeffrey Rohlfs, and Harry M. Shooshan, *UNE Prices and Telecommunications Investment*, Strategic Policy Research (2002).

³⁰¹ John Haring and Jeffrey Rohlfs, *The Disincentives for ILEC Broadband Investment Afforded by Unbundling Requirements*, Strategic Policy Research (July 16, 2002).

substantially reduce the expected returns from such investments, a phenomenon known as the “real option effect.”

Given the loss of this real option, ILEC infrastructure investments to support mass DSL deployment are generally unprofitable and unlikely to be made. The authors use the example of SBC’s Project Pronto, a \$6 billion planned investment to bring DSL to a thirteen-state market. On the basis of SBC’s experience with Pronto Project, which was aborted in late 2001 because of new unbundling regulations imposed by state regulators, the authors estimate that unbundling requirements are likely to deter \$20 billion or more of ILEC investment for mass DSL deployment.

*11. Hassett and Kotlikoff (2002)*³⁰²

This study evaluates the impact of network sharing required by the Telecommunications Act of 1996 on the investment behavior of ILECs and CLECs. Hassett and Kotlikoff review empirical evidence and the results of other studies, present a textbook model of regulated monopoly behavior, and use the results of a dynamic game to illustrate possible effects of regulation on the investment and market entry decisions of ILECs and CLECs. The authors conclude that, when properly enforced, the Telecommunications Act of 1996 leads to reductions in telecommunications prices, savings for consumers, and increases in telecommunications investment by both ILECs and CLECs. They argue that rigorous enforcement of the Telecommunications Act of 1996 could restore the depressed levels of telecommunications investment to those seen in the late 1990s.

*12. Lehman (2002)*³⁰³

Lehman reports that initial UNE rates averaged \$5, or 25 percent, below actual, embedded costs. He also estimates a cross-section regression model to show the impact of UNE rates on investment in high-speed networks by both ILECs and cable companies. He finds that each \$1 increase in the UNE rate will yield 5,048 new high-speed lines.

*13. Ingraham and Sidak (2003)*³⁰⁴

This study tests the Jorde-Sidak-Teece hypothesis that mandatory unbundling at TELRIC prices harms ILEC investment because it increases the ILEC’s cost of equity capital by increasing risk and volatility of returns. Using daily returns between January 1996 and December 2002, the authors estimate that the regional Bell companies experienced significantly higher stock price volatility during recessions than during

³⁰² Kevin A. Hassett and Laurence J. Kotlikoff, *The Role of Competition in Stimulating Telecom Investment*, American Enterprise Institute (2002).

³⁰³ Dale Lehman, *The Court’s Divide*, 1 REV. NETWORK ECON. 106 (2002).

³⁰⁴ Allan T. Ingraham and J. Gregory Sidak, *Mandatory Unbundling, UNE-P, and the Cost of Equity: Does TELRIC Pricing Increase Risk for Incumbent Local Exchange Carriers?* Criterion Economics (2003).

expansions, a result that increased the RBOC's equity costs of capital by between 0.39 and 4.13 percent.

The authors further test an implication of the hypothesis that the stock prices of the regional Bell companies experienced positive abnormal returns following a front-page story in the *Wall Street Journal* on January 6, 2003, indicating that FCC Chairman Michael Powell would effectively end UNE-P by dramatically reducing the number of elements that ILECs must offer to lease to competitors on an unbundled basis at TELRIC prices.

The authors find that the 8.4 percent increase (\$18.8 billion) in the market value of the four regional Bell companies and the 8.3 percent increase (\$1.5 billion) in the market value of an index of telecommunications equipment stocks on the day of the announcement represent statistically significant positive abnormal returns. They conclude that mandatory unbundling at TELRIC prices has decreased the ILECs' incentives to invest in their own networks.

*14. Phoenix Center Policy Bulletin No. 5 (2003)*³⁰⁵

This study examines the impact of UNE-P on RBOC investment behavior in states served by BellSouth, SBC, and Verizon from 2000 through 2002. Using an econometric model to quantify the relationship between UNE-P and the operating companies' investments in telecommunications plant, the authors conclude that a positive relationship exists between UNE-P and investment. According to the authors, each additional UNE-P access line increased operating company average net investment by \$759 per year (6.4 percent).

*15. Phoenix Center Policy Bulletin No. 7 (2003)*³⁰⁶

This study evaluates the contribution of ILECs and CLECs to wireline employment following the passage of the Telecommunications Act of 1996 by comparing actual employment with a trend line based on the January 1990 to July 2003 period. The authors conclude that, while overall industry employment declined because of the recession and collapse of the Internet bubble, the growth of CLECs due to UNEs has added about 92,000 jobs to the wireline telecommunications segment. This represents a 17 percent increase over the trend line.

³⁰⁵ *Competition and Bell Company Investment in Telecommunications Plant: The Effects of UNE-P*, PHOENIX CENTER POLICY BULL. No. 5 (2003).

³⁰⁶ *The Positive Effects of Competition on Employment in the Telecommunications Industry*, PHOENIX CENTER POLICY BULL. No. 7 (2003).

16. Pindyck (2004)³⁰⁷

This study examines the effect of the network-sharing arrangements mandated by the Telecommunications Act of 1996 on ILEC investment incentives. Pindyck states that the sharing rules, though intended to promote competition, in fact reduce incentives to build new networks or upgrade existing ones because of the investments' irreversible sunk costs. Entrants do not bear these sunk costs because of the flexibility and extensive nature of the sharing opportunities. The resulting asymmetric allocation of risk and return is not accounted for in the current pricing system. Because the incumbents' network investments are readily available to competitors at rates that do not fully compensate the incumbents for the opportunity costs of their investments, these sharing rules significantly lower investment incentives. Pindyck concludes that current network-sharing rules ignore the impact of the irreversibility of capital investment and reduce incentives to invest and thus negatively affect the welfare of consumers of telecommunications services.

17. Pociask (2002)³⁰⁸

This study estimates the impact of building a nationwide broadband network on the U.S. economy. Pociask concludes that building a new nationwide network would generate \$270 billion, or \$35.2 billion per year, in additional investment spending over an eight-year period. The additional investment would expand employment by a total of 1.2 million jobs, including 166,000 jobs in the telecommunications sector, 71,700 jobs in the telecommunications equipment and customer premise equipment manufacturing industries, and 974,000 indirect jobs in other industries.

18. Pociask (2004)³⁰⁹

This study estimates the impact of increasing broadband taxes by 10.9 percent, from 6 to 16.9 percent, on the transport services DSL providers use to serve their customers. After reviewing the literature, Pociask uses an estimate of the price elasticity of DSL demand of -1.5 to project that the assumed tax increase would decrease DSL revenue by \$2.5 billion and after-tax DSL revenue by \$10.3 billion over five years. Based on an industry average of \$223,000 of revenues per employee, this implies a loss of 11,900 telecommunications industry jobs, including 7,600 union jobs, in the fifth year after the tax increase, without considering the resulting reduction in industry capital spending and further loss of jobs in other industries that these reductions would cause.

³⁰⁷ Robert S. Pindyck, *Mandatory Unbundling and Irreversible Investment in Telecom Networks*, NBER WORKING PAPER w10287 (Feb. 2004).

³⁰⁸ Stephen Pociask, *Building a Nationwide Broadband Network: Speeding Job Growth*, TeleNomic Research (2002).

³⁰⁹ Stephen Pociask, *Taxing High-Speed Services: A Quantification of the Effects on the DSL Industry and Universal Service*, New Millennium Research Council (2004).

19. Sinai (2004)³¹⁰

This study analyzes the potential impact of the FCC's Triennial Review (February 2003) and the decision of the U.S. Court of Appeals for the D.C. Circuit regarding CLECs' use of UNEs (March 2004) on RBOC and CLEC investments. Together, the FCC review and the appeals court decision resulted in the elimination of the unbundling rules in the Telecommunications Act of 1996. Assuming these changes to be permanent, Sinai estimates the impact on growth, capital spending, and jobs. He concludes that these policy changes will increase real GDP by \$14.8 billion annually, add \$6.8 billion per year in capital expenditures from 2004 to 2008, create an average of 91,000 additional jobs from 2004 to 2008, and decrease the federal budget deficit through increased tax receipts.

20. Willig (2002)³¹¹

In his declaration to the FCC on behalf of AT&T, Willig addresses the effects of the unbundling and pricing rules of the Telecommunications Act of 1996 on investment in facilities by both CLECs and ILECs. Willig argues in favor of retaining existing UNEs, eliminating existing restrictions that limit access to certain UNEs, and rejecting proposals that would adopt new "granular" restrictions. He concludes that the existing restrictions have negatively affected CLECs in several ways. The restrictions, according to Willig, have prevented service offerings, inhibited investment, contributed to bankruptcies, raised costs through litigation, and inhibited the raising of new capital.

21. Willig, Lehr, Bigelow, and Levinson (2002)³¹²

This study analyzes the impact of the unbundling rules in the Telecommunications Act of 1996 on the investment behavior of ILECs. The authors review the theoretical arguments for and against UNE rules and present an empirical analysis using CLEC and ILEC investment data in the period since the act's passage. The authors conclude that mandatory unbundling provisions do not deter ILEC investment. They estimate that a 1 percent reduction in UNE rates corresponds to a 2.1 to 2.9 percent increase in ILEC investment and argue that the unbundling of ILEC networks stimulates investment by both ILECs and CLECs.

³¹⁰ Allen Sinai, *Macroeconomic Effects of Telecommunications Deregulation*, Decision Economics, Inc. (2004).

³¹¹ Declaration of Robert D. Willig, Attachment F to Comments of AT&T Corporation, CC Docket Nos. 01-338, 96-98, and 98-147, Federal Communications Commission (Apr. 5, 2002).

³¹² Robert D. Willig, William H. Lehr, J. P. Bigelow, and Stephen B. Levinson, *Stimulating Investment and the Telecommunications Act of 1996* (2002).

APPENDIX IV GLOSSARY

ADSL – Asymmetric Digital Subscriber Line – This is a method for moving data over regular phone lines. An ADSL circuit is much faster than a regular phone connection, and the wires coming into the subscriber's premises are the same (copper) wires used for regular phone service. An ADSL circuit must be configured to connect two specific locations, similar to a leased line. A commonly discussed configuration of ADSL would allow a subscriber to receive data (download) at speeds of up to 1.544 megabits per second and to send (upload) data at speeds of 128 kilobits per second. Thus, the “asymmetric” part of the acronym.

BEA – Bureau of Economic Analysis – The BEA is part of the Economics and Statistics Administration of the Department of Commerce. The BEA collects source data, conducts research and analysis, develops and implements estimation methodologies, and disseminates economic accounts statistics, including the national income and product accounts (NIPAs), to the public.

BOC – Bell Operating Company – This is a term for any of the Bell System’s twenty-two original operating companies (or their successors) that a U.S. federal court consent decree allowed to continue to provide local exchange telephone service within a specific geographic area. The decree, which broke up the Bell System on January 1, 1984, divested these companies from AT&T (and its manufacturing and research and development entities) to create competition in long-distance service. The decree initially prevented the BOCs from manufacturing equipment or providing long-distance service. The Telecommunications Act of 1996 forced the BOCs to open their local markets to competition and now permits the firms to engage in long-distance business under certain circumstances.

BPL – Broadband over Power Lines – This is a technology that uses electrical wires, both transmission wires and in-home wiring, to transmit data. It uses the copper wires as a conduit for radio waves, in much the same way as coaxial cable does.

BSP – Broadband Service Provider – BSPs are cable system overbuilders. BSPs deploy modern broadband systems that typically offer video, Internet access, and voice services.

CAP – Competitive Access Provider – This is the name for a CLEC before passage of the Telecommunications Act of 1996.

Circuit Switching – This is a switching architecture that always holds the connection between telephones open to provide a continuous communication channel.

CLEC – Competitive Local Exchange Carrier – A CLEC is a company that competes with the already established local telephone company. The term distinguishes a new or potential competitor from an incumbent local exchange carrier (ILEC).

CM – Cable Modem – A cable modem is the box that connects a user’s computer or home network to the cable system’s data network.

CMRS – Commercial Mobile Radio Services – These include mobile phone and paging services that firms sell to the public or businesses. CMRS are provided under common carriage.

Colocation – Colocation is an arrangement in which a server that belongs to one person or group is physically located on an Internet-connected network that belongs to another person or group. Usually this is done because the server owner wants its machine to be on a high-speed Internet connection and/or does not want the security risks of having the server on its own network.

CPE – Customer Premises Equipment – This term denotes terminal and associated equipment and inside wiring located at the subscriber’s premises and connected with a carrier’s network.

CTIA – Cellular Telecommunications and Internet Association – The CTIA is the international wireless communications trade association.

DBS – Direct Broadcast Satellite – DBS refers to a high-powered satellite video service that is characterized by the smaller satellite dishes used to receive the signal.

DSL – Digital Subscriber Line – This is a technology that brings broadband data to homes and small businesses over ordinary copper telephone lines. A DSL line can carry both data and voice signals, and the data part of the line is continuously connected. See ADSL for the most common version of DSL.

FCC – Federal Communications Commission – The FCC is an agency established by the Communications Act of 1934 and charged with regulating interstate and international communications by radio, television, wire, satellite, and cable. The FCC’s jurisdiction covers the fifty states, the District of Columbia, and U.S. possessions. An independent U.S. government agency, the FCC is directly responsible to Congress.

FTTH – Fiber to the Home / FTTP – Fiber to the Premises – These terms refer to a network in which high-capacity fiber-optic cabling is brought to each house, rather than to larger neighborhoods. The technology provides voice, data, and video services from the phone company’s branch office to local customers’ residences or businesses.

HSD – High-Speed Data – Also known as broadband, this term refers most commonly to a new generation of high-speed transmission services that allows users to access the Internet and Internet-related services at speeds about 100 times faster than traditional modems.

ICT – Information and Communications Technology – ICT includes any communication device or application, encompassing radio, television, cellular phones,

computer and network hardware and software, and satellite systems, as well as the various services and applications associated with them, such as videoconferencing and distance learning.

ILEC – Incumbent Local Exchange Carrier – An ILEC is a telephone company that was providing local service when the Telecommunications Act of 1996 was enacted. ILECs include the former Bell operating companies, which were grouped into holding companies known collectively as the regional Bell operating companies when a 1982 federal court consent decree broke up the Bell System, in 1984. ILECs are in contradistinction to CLECs (competitive local exchange carriers).

IntraLATA Service – This is telecommunications service that originates and terminates within the same local access and transport area (LATA). Customers may elect to have either the local phone company or a long-distance company carry these calls. IntraLATA service is sometimes called local long-distance.

IP – Internet Protocol – IP is the method or protocol by which data are sent from one computer to another on the Internet. Each computer (known as a host) on the Internet has at least one IP address that uniquely identifies it to distinguish it from all other computers on the Internet.

ISDN – Integrated Services Digital Network – ISDN is a set of standards for digital transmission over ordinary telephone copper wire. In contrast to DSL, ISDN does not allow normal phone service over the same line without digital adapters and transmits data at a rate of speed higher than a traditional telephone modem, but below broadband rates.

ISP – Internet Service Provider – This is a company like Earthlink, AOL, or MSN that offers a service connecting users to the Internet.

IT – Information Technology – IT is a term that encompasses all forms of telephony and computer technology employed to create, store, exchange, and use information in its various forms (business data, voice conversations, still images, motion pictures, multimedia presentations, and other forms).

ITFS – Instructional Television Fixed Service – This refers to a service provided over a band of microwave frequencies set aside by the FCC exclusively for the transmission of educational programming. The service allows broadcast of audio, video, and data to receiving sites located within twenty miles of the point of origination. The receiving sites require a converter that changes signals to those used by a standard television set. See MMDS for companion service.

ITU – International Telecommunications Union – The ITU is an international organization within the United Nations in which governments and the private sector coordinate global telecom networks and services.

IXC – Interexchange Carrier – This is a long-distance company.

LAN – Local Area Network – A LAN is a group of computers and associated devices that share a common communications line or wireless link and typically share the resources of a single processor or server within a small geographic area (for example, within an office building). Usually, the server has applications and data storage that multiple computer users share.

LATA – Local Access and Transport Area – A geographical area within which a Bell operating company is permitted to offer exchange telecommunications and exchange access services. Under the terms of the U.S. federal court consent decree that broke up the Bell System, the BOCs were generally prohibited from providing services that originate in one LATA and terminate in another.

LEC – Local Exchange Carrier – A LEC is a telephone company that provides local phone service. LECs are either incumbents (ILECs) or entrants (CLECs).

Local Loop – The local loop traditionally refers to the copper wire connection from a telephone company's central office to a customer's home or business. Sometimes referred to as a "twisted pair," the traditional local loop is literally a loop of copper that creates a circuit when a telephone handle is picked up.

MMDS – Multipoint Microwave Distribution System (also known as Multichannel Multipoint Distribution System and Wireless Cable) – MMDS channels come in six MHz chunks and run on frequencies licensed exclusively by the Federal Communications Commission. MMDS is a line-of-sight service, so it will not work well around mountains, but it will work in rural areas, where copper lines are not available.

MOU – Minutes of Use – MOU is a metric often used in telecom.

MSS – Mobile Satellite Service – This is a communications transmission service provided by satellites. A single satellite can provide coverage to the entire United States.

MVNO – Mobile Virtual Network Operator – An MVNO is a firm that markets wireless services under its own brand name but uses another carrier's infrastructure.

MVPD – Multichannel Video Programming Delivery – MVPD refers to the delivery of video programming via cable, DBS, or MMDS systems.

NOPAT – Net Operating Profit after Taxes – NOPAT is a profitability measure that omits the cost of debt financing (i.e., it omits interest payments, along with their associated tax break). NOPAT is primarily used in the calculation of economic value added.

NTIA – National Telecommunications and Information Agency – The NTIA, a part of the Department of Commerce, is the counterpart to the FCC that oversees the federal government's use of radio spectrum.

OECD – Organization for Economic Cooperation and Development – The OECD is a group of thirty countries with democratic governments and market economies.

Packet Switching – Packet switching refers to an architecture in which digital information is broken into small packets that are transmitted over a network and reassembled at the receiving end of the transmission. The data in the transport network travel over no particular channel. The Internet is a packet-switched network.

PCS – Personal Communications Services – This is an FCC term that describes a set of digital cellular technologies deployed in the United States. Three of the most important distinguishing features of PCS systems are: they are completely digital; they operate at the 1,900 MHz frequency range (unlike other cellular systems that operate in the 800 MHz frequency range); and they can be used internationally.

POTS – Plain Old Telephone Service – This is the standard telephone service that most homes use. In contrast, telephone services based on high-speed, digital communications lines are not POTS. The main distinctions between POTS and non-POTS services are speed and bandwidth. POTS is generally restricted to about 52,000 bits per second.

RBOC – Regional Bell Operating Company – This term describes one of the U.S. regional telephone companies (or their successors) that were created as a result of the breakup of AT&T by a federal court consent decree on January 1, 1984. The seven original regional Bell operating companies were Ameritech, Bell Atlantic, BellSouth, NYNEX, Pacific Bell, Southwestern Bell, and US West. Each of these companies owned at least two Bell operating companies (BOCs). Today, via several mergers and acquisitions, only four RBOCs remain—SBC, BellSouth, Qwest, and Verizon.

ROIC – Return on Invested Capital – ROIC equals NOPAT divided by invested capital.

Section 251 – Section 251 of the Telecommunications Act of 1996 seeks to foster competition in the local telephone market by requiring incumbent local exchange carriers to make their facilities available to competing local exchange carriers. Specifically, Section 251 directs ILECs to interconnect with CLECs on reasonable terms, make unbundled network elements available to CLECs on just, reasonable, and nondiscriminatory terms, or make any service the ILEC offers at retail available to CLECs at a reasonable discount.

SIP – Session Initiation Protocol – This very simple, text-based, application-layer control protocol creates, modifies, and terminates sessions with one or more participants. Such sessions include Internet telephony and multimedia conferences.

SMR – Specialized Mobile Radio – This is a land-based radio service, established in the late 1970s in the United States, that provides one-to-many and many-to-one communications. SMR has also been called trunked radio or public access mobile radio.

SMR systems are designed to help roaming field personnel stay in touch with the home office and are often called “dispatch services.”

Telecommunications Act of 1996 – The Telecommunications Act of 1996, signed into law on February 8, 1996, provided major changes in laws affecting cable TV, telecommunications, and the Internet. The law’s primary purpose was to stimulate competition in telecommunications services by specifying how local telephone carriers can compete and how and under what circumstances local exchange carriers can provide long-distance services as well as requiring the deregulation of cable TV rates.

TELRIC – Total Element Long-Run Incremental Cost – This is a pricing formula established by the FCC as part of its implementation of the Telecommunications Act of 1996 to set the prices that ILECs may charge competitors to lease the unbundled network elements from the local phone network. The Telecommunications Act of 1996 requires that prices paid by competitors to access incumbent’s networks be “cost-based.” TELRIC is a forward-looking cost approach that considers the costs that would be incurred from a hypothetical, perfectly efficient future network.

TELRIC-BS – TELRIC-Blank Slate – This is the label economist and former regulator Alfred E. Kahn has given to the FCC’s pricing formula for UNEs. The BS component stands for “blank slate,” because he argues that regulators ignore the ILEC’s actual costs and instead adopt the costs of a hypothetical, most efficient new entrant.

TIA – Telecommunications Industry Association – The TIA is the leading U.S. nonprofit trade association serving the communications and information technology industry.

TRO – Triennial Review Order – On August 21, 2003, the FCC issued its Triennial Review Order, the final order in a proceeding concerning a triennial review of its rules governing competition for local telephone service (established by the Telecommunications Act of 1996). The Triennial Review Order, in part, generally preserved the FCC’s unbundled network element rules. It also set forth an impairment standard for determinations on network unbundling requirements and gave the states a substantial role in applying this standard according to specific guidelines.

TSR – Total Service Resale – TSR refers to one of the two options available to competitive local exchange carriers to enter the local phone service market by using the incumbent local exchange carrier’s network (the other is by using unbundled network elements). In the case of TSR, the ILEC’s network is provided to CLECs at a price based on the “retail” tariff price, minus a fixed percentage “discount” (typically in the 20–25 percent range).

UHF – Ultra-High Frequency – This refers to the frequency range between 300 MHz and 3.0 GHz, which is a higher band than the very high frequency band. UHF and VHF are the most common frequency bands for television.

UNE – Unbundled Network Element – The Telecommunications Act of 1996 required the incumbent to make access to its network available to competitors at technically feasible points. Unbundled network elements comprise loops, the network interface device, local circuit switching, dedicated and shared transport, signaling and call-related databases, and operations support systems.

UNE-L – Unbundled Network Element-Loop – UNE-L refers to the unbundled network element that is the copper loop to the home.

UNE-P – Unbundled Network Element-Platform – UNE-P is a combination of UNEs that allow end-to-end service delivery without any facilities—a rebundling of the UNEs.

USF – Universal Service Fund – This fund is required by the Telecommunications Act of 1996 to offset higher operational costs of some local exchange carriers, primarily in rural areas. The fund is supported by a fee charged to telephone subscribers that is set by the FCC.

VHF – Very High Frequency – This band has frequencies that range from 30 MHz (wavelength 10 m) to 300 MHz (wavelength 1 m). Common uses for VHF are FM radio broadcast at 88–108 MHz and television broadcast (together with UHF). VHF is also commonly used for terrestrial navigation systems and aircraft communications.

VoIP – Voice over Internet Protocol – This term refers to the delivery of voice information in the language of the Internet, i.e., as digital packets instead of the current circuit protocols of the copper-based phone networks. In VoIP systems, analog voice messages are digitized and transmitted as a stream of data (not sound) packets that are reassembled and converted back into a voice signal at their destination. With VoIP, a PC becomes a phone, and one can call anywhere in the world for the cost of a local call.

WACC – Weighted Average Cost of Capital – WACC is used in finance to measure a firm's opportunity cost of capital. It is calculated by multiplying the cost of each capital component (equity, debt) by its proportional weighting and then by summing.

xDSL – This refers to any type of digital subscriber line. See DSL and ADSL.

BELLSOUTH APPENDIX

TAB 6

BEFORE THE PUBLIC SERVICE COMMISSION

In re: Implementation of requirements arising from Federal Communications Commission's triennial UNE review: Local Circuit Switching for Mass Market Customers.

DOCKET NO. 030851-TP

In re: Implementation of requirements arising from Federal Communications Commission's triennial UNE review: Location-Specific Review for DS1, DS3 and Dark Fiber Loops, and Route-Specific Review for DS1, DS3 and Dark Fiber Transport.

DOCKET NO. 030852-TP

ORDER NO. PSC-04-0989-FOF-TP

ISSUED: October 11, 2004

The following Commissioners participated in the disposition of this matter:

BRAULIO L. BAEZ, Chairman
J. TERRY DEASON
RUDOLPH "RUDY" BRADLEY
CHARLES M. DAVIDSON

ORDER CLOSING DOCKETS

BY THE COMMISSION:

Case Background:

On August 21, 2003, the Federal Communications Commission (FCC) released its *Triennial Review Order*¹, which contained revised unbundling rules and responded to the D.C. Circuit Court of Appeals' remand decision in *USTA I*.² The *TRO* eliminated enterprise switching as a UNE on a national basis. For other UNEs (e.g., mass market switching, high capacity loops, dedicated transport), the *TRO* provided for state review on a more granular basis to determine whether and where impairment existed, to be completed within nine months of the effective date of the order. In addition, the *TRO* imposed new obligations on ILECs (e.g., commingling, and

¹ In the Matter of Review of the Section 251 Unbundling Obligations of Incumbent Local Exchange Carriers, Implementation of the Local Competition Provisions of the Telecommunications Act of 1996, Deployment of Wireline Services Offering Advanced Telecommunications Capability, CC Docket Nos. 01-338, 96-98, 98-147, Report and Order and Order on Remand and Further Notice of Proposed Rulemaking, rel. August 21, 2003 (*Triennial Review Order* or *TRO*).

² United States Telecom Association v. FCC, 290 F.3d 415 (D.C. Cir. 2002) (*USTA I*).

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conversion of special access to Enhanced Extended Links (EELs)). The *TRO* did not address the issue of UNE pricing, or retail rates charged by ILECs or CLECs.

In response to the *TRO*, Docket Nos. 030851-TP and 030852-TP were opened on August 22, 2003. Docket No. 030851-TP was initiated to address local circuit switching for mass market customers, and Docket No. 030852-TP was initiated to address the location-specific review for DS1, DS3, and dark fiber loops and route-specific review for DS1, DS3, and dark fiber transport.

The hearing in Docket No. 030851-TP was held February 24-27, 2004. Shortly thereafter, on March 2, 2004, the D.C. Circuit Court of Appeals released its decision in *United States Telecom Ass'n v. FCC*³ which vacated and remanded certain provisions of the *TRO*. In particular, the D.C. Circuit held that the FCC's delegation of authority to state commissions to make impairment findings was unlawful, and further found that the national findings of impairment for mass market switching and high-capacity transport were improper and could not stand on their own. Accordingly, the Court vacated the *TRO*'s subdelegation to the states for determining the existence of impairment with regards to mass market switching and high-capacity transport. The D.C. Circuit also vacated and remanded back to the FCC the *TRO*'s national impairment finding with respect to these elements.

In light of *USTA II*, Order No. PSC-04-0252-PCO-TP, was issued March 8, 2004, in Docket No. 030852-TP, holding the docket in abeyance indefinitely pending the outcome of litigation regarding the D.C. Circuit Court of Appeals' decision. By Order No. PSC-04-0305-PCO-TP, issued in Docket No. 030851-TP on March 18, 2004, this docket was also held in abeyance until further action was deemed appropriate. Informal status conference calls with the parties in both dockets were held April 5, May 11, June 8, and July 7, 2004.

The D.C. Circuit Court stayed the vacatur of the *TRO* rules for 60 days and later extended that stay for another 45 days, until June 15, 2004. On June 16, 2004, the D.C. Circuit issued its mandate vacating and remanding certain *TRO* provisions. Various parties have filed petitions for certiorari with the Supreme Court.

As a result of the Court's mandate, the FCC released an *Order and Notice*⁴ on August 20, 2004, requiring ILECs to continue providing unbundled access to mass market local circuit switching, high capacity loops and dedicated transport until the earlier of the effective date of final FCC unbundling rules or six months after Federal Register publication of the *Order and*

³ 359 F. 3d 554 (D.C. Cir. 2004) (*USTA II*), pets. for cert. filed, Nos. 04-12, 04-15, 04-18 (June 30, 2004).

⁴ In the Matter of Unbundled Access to Network Elements, WC Docket No. 04-313; In the Matter of Review of the Section 251 Unbundling Obligations of Incumbent Local Exchange Carriers, CC Docket No. 01-338, Order and Notice of Proposed Rulemaking, FCC 04-179, rel. August 20, 2004 (Order and Notice).

Notice. Additionally, the rates, terms, and conditions of these UNEs are required to be those that applied under ILEC/CLEC interconnection agreements as of June 15, 2004.⁵ In the event that the interim six months expires without final FCC unbundling rules, the *Order and Notice* contemplates a second six-month period during which CLECs would retain access to these network elements for existing customers, at transitional rates. Besides establishing interim measures, the *Order and Notice* seeks comment on, among other things, alternative unbundling rules that will respond to *USTA II*. On August 23, 2004, certain ILECs filed a *Mandamus Petition*⁶ with the D.C. Circuit Court of Appeals in response to the FCC's *Order and Notice*.

This Order addresses the procedural issues of whether Docket Nos. 030851-TP and 030852-TP should be closed and whether this Commission should prepare summaries of the records in these dockets and forward the summaries to the FCC in response to the *Order and Notice*.

Discussion of Issues

USTA II is clear that the decision-making regarding impairment is reserved for the FCC, not the states. In this regard, the District of Columbia Circuit Court stated that the *TRO* improperly delegated FCC authority to the states to make findings on whether impairment exists absent access to a given element being provided to a CLEC. Specifically, the Court states:

We therefore vacate, as an unlawful subdelegation of the Commission's §251(d)(2) responsibilities, those portions of the Order that delegate to state commissions the authority to determine whether CLECs are impaired without access to network elements, and in particular we vacate the Commission's scheme for subdelegating mass market switching determinations. (This holding also requires that we vacate the Commission's subdelegation scheme with respect to dedicated transport elements, discussed below.)⁷

We recognize that petitions for certiorari have been filed with the Supreme Court. If certiorari is granted, it is unlikely that a Supreme Court decision will be issued for one to two years. Even if *USTA II* is ultimately overturned, the information and data gathered in Docket Nos. 030851-TP and 030852-TP will have become dated, not reflective of current markets, and

⁵ Except to the extent the rates, terms, and conditions have been superseded by 1) voluntarily negotiated agreements, 2) an intervening FCC order affecting specific unbundling obligations (e.g., an order addressing a petition for reconsideration), or 3) a state commission order regarding rates.

⁶ *United States Telcom Association v. FCC*, Petition for a Writ of Mandamus to Enforce the Mandate of the Court, August 23, 2004 (*Mandamus Petition*).

⁷ *USTA II* at 18.

consequently should not be the basis for this Commission's decision-making, if any. Accordingly, we find that no further action is necessary or required in Docket Nos. 030851-TP and 030852-TP, and thus the dockets should be closed.

We note that the FCC's *Order and Notice* seeks comment on alternative unbundling rules to implement the *USTA II* decision. Specifically, the *Order and Notice* recognizes that state commissions initiated proceedings to implement the *TRO* and developed voluminous records containing relevant information. The FCC encourages state commissions and other parties to file summaries of the state proceedings, especially highlighting factual information relevant to the Court's guidance under *USTA II*. To avoid duplication, the FCC encourages state commissions and parties that participated in the state proceedings, to coordinate the filing of information.⁸

We have misgivings with attempting to summarize the records in Docket Nos. 030851-TP and 030852-TP, since we did not render findings of fact in these dockets. We are concerned that such summaries may be interpreted or construed as specific Commission findings. Moreover, we note that even if the information in these dockets were summarized, much of the salient record information and data is confidential, filed under protective agreements. Thus, this Commission could not release that information to the FCC. We believe it makes sense that such data come directly from the parties. The various parties are aware of the data and information filed in each state proceeding. Accordingly, we find it is more appropriate for the parties to present their case to the FCC, submitting the information and data included in the records of these dockets to support their respective positions. Therefore, we hold that this Commission should not prepare summaries or forward the records in these dockets. However, our staff is ready to facilitate such filings by the parties and provide any other reasonable assistance to effect such efforts.

In conclusion, we hold that Docket Nos. 030851-TP and 030852-TP be closed as no further action is necessary or required by this Commission as a result of *USTA II*. Additionally, we hold that this Commission not prepare summaries or forward the records in these dockets to the FCC, but rather serve to facilitate any such filings by the parties and provide any other reasonable assistance to effect such efforts.

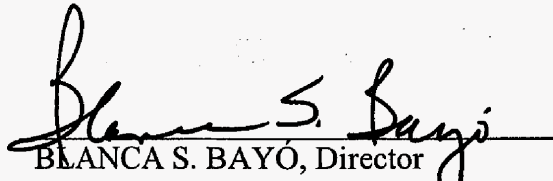
Based on the foregoing, it is

ORDERED by the Florida Public Service Commission that no further action is necessary or required in Docket Nos. 030851-TP and 030852-TP, and thus the dockets shall be closed. It is further

ORDERED that this Commission will not prepare summaries or forward the records in these dockets to the FCC, but rather serve to facilitate any such filings by the parties and provide any other reasonable assistance to effect such efforts.

⁸ Notice and Order at para. 15.

By ORDER of the Florida Public Service Commission this 11th day of October, 2004.


BLANCA S. BAYÓ, Director
Division of the Commission Clerk
and Administrative Services

(S E A L)

JLS/AJT

NOTICE OF FURTHER PROCEEDINGS OR JUDICIAL REVIEW

The Florida Public Service Commission is required by Section 120.569(1), Florida Statutes, to notify parties of any administrative hearing or judicial review of Commission orders that is available under Sections 120.57 or 120.68, Florida Statutes, as well as the procedures and time limits that apply. This notice should not be construed to mean all requests for an administrative hearing or judicial review will be granted or result in the relief sought.

Any party adversely affected by the Commission's final action in this matter may request: 1) reconsideration of the decision by filing a motion for reconsideration with the Director, Division of the Commission Clerk and Administrative Services, 2540 Shumard Oak Boulevard, Tallahassee, Florida 32399-0850, within fifteen (15) days of the issuance of this order in the form prescribed by Rule 25-22.060, Florida Administrative Code; or 2) judicial review by the Florida Supreme Court in the case of an electric, gas or telephone utility or the First District Court of Appeal in the case of a water and/or wastewater utility by filing a notice of appeal with the Director, Division of the Commission Clerk and Administrative Services and filing a copy of the notice of appeal and the filing fee with the appropriate court. This filing must be completed within thirty (30) days after the issuance of this order, pursuant to Rule 9.110, Florida Rules of Appellate Procedure. The notice of appeal must be in the form specified in Rule 9.900(a), Florida Rules of Appellate Procedure.

BELLSOUTH APPENDIX

TAB 7

BEFORE THE
FLORIDA PUBLIC SERVICE COMMISSION

DOCKET NO. 040601-TP

In the Matter of:

PETITION BY DIECA COMMUNICATIONS,
INC. d/b/a COVAD COMMUNICATIONS
COMPANY FOR ARBITRATION OF ISSUE
RESULTING FROM INTERCONNECTION

NEGOTIATIONS WITH BELLSOUTH
TELECOMMUNICATIONS, INC., AND
REQUEST FOR EXPEDITED PROCESSING.

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PROCEEDINGS: AGENDA CONFERENCE
ITEM NO. 6

BEFORE: CHAIRMAN BRAULIO L. BAEZ
COMMISSIONER J. TERRY DEASON
COMMISSIONER LILA A. JABER
COMMISSIONER RUDOLPH "RUDY" BRADLEY
COMMISSIONER CHARLES M. DAVIDSON

DATE: Tuesday, October 5, 2004

PLACE: Betty Easley Conference Center
Room 148
4075 Esplanade Way
Tallahassee, Florida

REPORTED BY: JANE FAUROT, RPR
Chief, Office of Hearing Reporter Services
FPSC Division of Commission Clerk and
Administrative Services
(850) 413-6732

FLORIDA PUBLIC SERVICE COMMISSION

1 PARTICIPATING:

2 NANCY WHITE, ESQUIRE, representing BellSouth
3 Telecommunications, Inc.

4 CHARLES E. WATKINS, representing Covad Communications
5 Company.

6 VICKI GORDON KAUFMAN, McWhirter Law Firm,
7 representing Covad Communications Company.

8 ADAM TEITZMAN, ESQUIRE, representing the Florida
9 Public Service Commission Staff.

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FLORIDA PUBLIC SERVICE COMMISSION

1 P R O C E E D I N G S

2 CHAIRMAN BAEZ: We are now on Item 6.

3 MS. SALAK: Chairman, it has just been requested by
4 the parties -- on Item 6, there are some discussions taking
5 place, and they want to move if we can move this until after 7.

6 CHAIRMAN BAEZ: We can jump over and move on to Item
7 7, I'm sorry. We will give them a few minutes.

8 Can you alert me when you are ready to come back on
9 it?

10 MS. SALAK: Yes, sir. Thank you.

11 COMMISSIONER JABER: Mr. Chairman, I just wanted to
12 state for the record that those kinds of discussions are looked
13 upon favorably, and parties should feel comfortable taking all
14 the time they want this morning.

15 CHAIRMAN BAEZ: There is no discomfort in skipping
16 over an item if discussions are still taking place. That much
17 should be clear. Thank you.

18 * * * * *

19 MS. SALAK: Mr. Chairman, the parties to Item 6 are
20 ready to proceed.

21 CHAIRMAN BAEZ: They are ready to proceed. So then
22 let us do so. Commissioners, we are back on Item 6.

23 COMMISSIONER JABER: And they are ready to tell us
24 they have found a solution.

25 CHAIRMAN BAEZ: Good news awaits us, I hope.

FLORIDA PUBLIC SERVICE COMMISSION

1 MS. SALAK:

2 COMMISSIONER JABER: We have good news.

3 COMMISSIONER BRADLEY: Are we back on Item 6?

4 CHAIRMAN BAEZ: We are back on Item 6, Commissioner
5 Bradley.

6 Mr. Teitzman, what is the best way to tee this up.
7 Perhaps it is with you, I don't know.

8 MR. TEITZMAN: Commissioners, Item 6 is staff's
9 recommendation in Docket 040601-TP. Although filed as an
10 arbitration, the parties have jointly requested the Commission
11 rule on whether or not BellSouth has a continuing obligation to
12 provide access to new line sharing arrangements.

13 There are two preliminary matters that need to be
14 addressed before discussion of the recommendation. The first,
15 both parties have requested official recognition of certain
16 documents. Covad has requested official recognition of PSC
17 Order Number PSC-02-1304-FOF-TL, which was issued in Docket
18 960786A-TL, and that order is the Commission's consultative
19 order in the BellSouth 271 docket. Staff would recommend
20 denying the request as it is unnecessary for the Commission to
21 recognize its own orders.

22 COMMISSIONER JABER: Move staff's recommendation.

23 COMMISSIONER DEASON: Second.

24 CHAIRMAN BAEZ: Moved and seconded. All those in
25 favor say aye.

1 (Unanimous affirmative vote.)

2 CHAIRMAN BAEZ: That official recognition is denied,
3 but we are at the same place on that one. Go ahead. There is
4 another one, I guess.

5 MR. TEITZMAN: There is an additional, BellSouth has
6 requested official recognition of the FCC's brief filed with
7 the D.C. Circuit Court of Appeals in connection with the
8 USTA II proceeding. Staff recommends granting this request as
9 it is considered a court record pursuant to Florida Statute
10 90.202, Subsection 6.

11 COMMISSIONER JABER: Move to grant the request for
12 official recognition.

13 COMMISSIONER DEASON: Second.

14 CHAIRMAN BAEZ: Moved and seconded. All those in
15 favor say aye.

16 (Unanimous affirmative vote.)

17 CHAIRMAN BAEZ: Thank you. Commissioners.

18 MR. TEITZMAN: There is an additional preliminary
19 matter, Chairman. Although noticed originally as participation
20 by Staff and Commissioners only, Covad has filed a letter with
21 the Commission Clerk requesting an opportunity to address the
22 Commission on this item. Although staff believes it would have
23 been appropriate to request oral argument upon the filing of
24 briefs, staff does not believe oral argument is prohibited at
25 this time. Consequently, staff believes it is within the

1 Commission's discretion to allow the parties to address the
2 Commission on this matter. Staff does note that BellSouth was
3 provided ample notice of Covad's request.

4 COMMISSIONER JABER: Mr. Chairman, for whatever it is
5 worth to you, I would very much welcome oral argument on this
6 issue.

7 CHAIRMAN BAEZ: All right. Well, that is two votes.
8 Out of courtesy, obviously we are going to go ahead and allow
9 them, but do the Commissioners have a suggestion or does staff
10 have a suggestion as to what the time limit on oral argument
11 should be?

12 COMMISSIONER JABER: Short and precise.

13 CHAIRMAN BAEZ: Otherwise we go back to the default,
14 I don't know.

15 MR. TEITZMAN: Well, it is certainly within the
16 Commission's discretion. I think usually ten minutes would be
17 sufficient.

18 COMMISSIONER JABER: Ten minutes would be fine.

19 CHAIRMAN BAEZ: We see some nodding. Great. Ten
20 minutes per side. Thank you, Mr. Teitzman.

21 MS. WHITE: We will do it in less, if possible.

22 CHAIRMAN BAEZ: As always your efficiency and brevity
23 is key.

24 Ms. Kaufman, go ahead.

25 MS. KAUFMAN: Thank you, Chairman and Commissioners.

1 Vicki Gordon Kaufman of the McWhirter Reeves law firm. I am
2 hear on behalf of Covad Communications. With me is Mr. Gene
3 Watkins, who is the senior counsel to Covad, and he is going to
4 be making the argument to you. And while he is beginning, I
5 have a document to distribute.

6 CHAIRMAN BAEZ: Thank you, Ms. Kaufman. Good
7 morning, Mr. Watkins.

8 MR. WATKINS: Good morning, Mr. Chairman. Good
9 morning, Commissioners.

10 Let me start by saying that Covad -- the issue before
11 the Commission today is does BellSouth have an obligation under
12 Section 271 to continue to provide line sharing to Covad,
13 access to line sharing to Covad after October, after yesterday,
14 of this year.

15 Covad strongly believes they do. However, we also
16 strongly believe that the parties, Covad and all the ILECs,
17 should work together to reach commercial agreements to address
18 this issue permanently so that we don't need to be before you
19 arguing this.

20 Covad has entered into such a commercial agreement
21 with Qwest, with SBC, and we have agreed with Verizon to extend
22 through January in hopes of reaching an agreement with Verizon.
23 BellSouth remains the lone holdout of the Regional Bell
24 Operating Companies on this issue, though we have been in
25 negotiations with them for over a year.

1 At the outset we hope we may be able to short cut
2 this, and pending before the FCC right now with an October 22nd
3 deadline is a petition for forbearance from Verizon seeking
4 forbearance on all broadband 271 issues. The FCC is under a
5 statutory deadline of October 22nd to reach a decision on that
6 petition. As the staff has recognized in their recommendation,
7 all the parties anticipate that that order will give a great
8 deal of guidance on this subject.

9 In Louisiana, BellSouth has agreed in the sister
10 proceeding of this one, to extend through November 10 of this
11 year the status quo in order to give that Commission time to
12 consider its decision. That was before there was any
13 consideration of this petition for forbearance that is pending
14 at the FCC.

15 COMMISSIONER JABER: Mr. Watkins, was that -- if I
16 could interrupt you while the thought is fresh, was that
17 decision in Louisiana made by the Commission, or was that a
18 voluntary agreement between your two companies?

19 MR. WATKINS: It was made by the Commission after the
20 representation from BellSouth by a letter, that I have with me
21 here today, that they would extend the status quo through
22 November 10, which was the next Commission meeting.

23 Given the October 22nd deadline, and the probability
24 and the rumor that there is an order floating around at the
25 FCC, there may be some guidance provided by the FCC on the

1 subject matter of 271 and broadband.

2 COMMISSIONER JABER: And extending the status quo
3 until November, what authority did they cite to, what rationale
4 did they give?

5 MR. WATKINS: The agreement of the parties.

6 COMMISSIONER JABER: I'm sorry?

7 MR. WATKINS: The agreement of the parties.
8 Unfortunately that was what we were out there talking about,
9 and the parties have not come to an agreement yet about this
10 particular -- about asking the Commission to defer deciding
11 this issue beyond that.

12 I can address what we believe the legal problems are
13 with the staff recommendation now, or we can discuss whether
14 you want to defer this for a period of time to see what the FCC
15 may say about this. Now, I can't promise that the FCC is going
16 to say anything or that it will be the model of clarity, which
17 I think is always a representation I'm willing to make.

18 CHAIRMAN BAEZ: Before you move, Commissioner
19 Davidson, you can go ahead before my question.

20 COMMISSIONER DAVIDSON: And this is an interesting
21 and put-you-on-the-spot question, irrelevant, but we had
22 dissenters at the FCC who really wanted line sharing, and we
23 had some in the majority who are speculated to have wanted line
24 sharing, but sort of didn't go that route in order to craft
25 what they thought would be an enforceable opinion. And this is

1 just sort of interest to me. What do you predict to be the
2 politics of this? I mean, if you had to, sort of, count the
3 votes at the FCC, what do you predict?

4 MR. WATKINS: Well, we have four FCC Commissioners
5 who have made public statements in support of line sharing.
6 Now, whether that support will take the form of 251(c)(3) --
7 (inaudible comment) -- exactly. Unfortunately that turns out
8 to be two Democrats and two Republicans, and there was a lot of
9 politicking going on in which we were kind of were the
10 sacrificial lamb. On the last go-around there has been --

11 CHAIRMAN BAEZ: Now, now.

12 MR. WATKINS: -- there has been some discussion of it
13 coming up again, because a lot of the basis for finding
14 nonimpairment, which was the availability of line splitting
15 with the disappearance of UNE-P and some public statements by
16 major partners of ours on what they are doing with UNE in the
17 residential market, may result in a refinding of impairment in
18 the next go-around. All of that, however, is highly
19 speculative and also partially dependent on the outcome of a
20 presidential election that is currently in a dead heat. So, it
21 would be the height of speculation to guess where and how
22 things are going to flesh out.

23 COMMISSIONER BRADLEY: Well --

24 CHAIRMAN BAEZ: Commissioner Bradley, if you will
25 just indulge me for a second. I need to get this question out,

1 because otherwise I will -- my confusion might continue. Going
2 back to the Louisiana agreement, I just want to get it clear in
3 my head it was an agreement between Covad and BellSouth?

4 MS. WHITE: Excuse me. Mr. Chairman, yes, apparently
5 so. I was not aware of it until this morning, but apparently
6 it was, yes.

7 CHAIRMAN BAEZ: And I just want to clarify, I guess,
8 the practical effect of that agreement. And that is BellSouth
9 and Covad agreed to withhold or defer pursuing some resolution
10 to this particular issue that you have based on the FCC's
11 decision on Verizon's petition for forbearance, is that
12 correct?

13 MR. WATKINS: Let me clarify, because Covad never
14 received a call from BellSouth on this matter. There was a
15 letter sent to a Commissioner of the Louisiana Commission
16 saying BellSouth agrees to maintain --

17 CHAIRMAN BAEZ: And you may not be the right person
18 to answer, maybe Ms. White knows enough about it.

19 MS. WHITE: Well, it is my understanding that the
20 staff recommendation on the line sharing issue in Louisiana
21 came out the day before that Commission's agenda session, so it
22 was one of those things that --

23 CHAIRMAN BAEZ: Hurry, hurry. Yes.

24 MS. WHITE: Yes, so we agreed to do it. We agreed to
25 defer, I guess is the right word.

1 COMMISSIONER JABER: We should have thought of that.

2 MS. WHITE: I know.

3 CHAIRMAN BAEZ: I'm not so much interested in
4 whatever exigencies existed that may have pushed it that far,
5 I'm trying to understand in practice what it is that -- where
6 you have placed your bet. And that is, in essence, on the
7 deferral, at least, you are waiting for a decision on a Verizon
8 petition, is that -- Mr. Criser, is that fair to say?

9 MR. CRISER: I will take a stab at this. I hope I
10 don't make it worse. Based on some quick homework that we
11 tried to do this morning, a couple of things that I think are
12 different from the instant case. One is that in Louisiana the
13 specific reason for the agreement to extend was because the
14 staff recommendation had come out just before the Commission's
15 decision, so there was a feeling that the Commission had not
16 had an opportunity to review the analysis of their staff. And
17 that is my understanding, at least, of the reason why we agreed
18 to provide more time in Louisiana.

19 Secondly, I don't know that we agree that the pending
20 Verizon order will address or resolve this issue in the next 30
21 days. My understanding is that the FCC does have a procedural
22 remedy that would allow them to get past that deadline. I will
23 be honest and tell you I'm not prepared to explain all of that.
24 And, in part, I guess, some reluctance on our part to come in
25 here this morning and tell you all to wait, because sometimes

1 saying wait because the FCC is about to do this, or may do
2 this, or, you know, I don't know that that is necessarily the
3 right posture to bring into this state when you have got a
4 fairly well-reasoned thought through recommendation in front of
5 you with really -- I don't want to hold out promise that we
6 think this thing would be resolved. If it would be resolved,
7 that is obviously in everyone's best interest.

8 CHAIRMAN BAEZ: And that is fair. But I guess my
9 question is much, is much more focused. I guess I'm trying
10 to -- I'm trying to understand what the Verizon petition for
11 forbearance, what kind of role is it playing here exactly. Is
12 it just waiting on, by chance, some additional guidance that
13 may change a recommendation, may help a decision along at the
14 state level, or --

15 MS. WHITE: It is my understanding that essentially
16 what Verizon is asking for the FCC to do is to issue an order
17 that says with regard to broadband, there are no Section 271
18 obligations. And if they said that, if the FCC agreed to say
19 that, then the line sharing issue would be gone. Now, that is
20 what Verizon wants. What the FCC does and how broadly it does
21 it --

22 CHAIRMAN BAEZ: I think we have gone to great lengths
23 to say how little we can speculate on what the FCC is going to
24 do. But I guess what I'm trying to focus on is whether there
25 is an impending decision out there that may wrap all of this

1 up, and trying to gauge the value of that impending decision to
2 all the parties involved. And I'm asking those questions to
3 lay it out there for the Commissioners, as well. Because I
4 think, you know, that may play into some kind of discussion. I
5 had questions along those lines with your particular petition,
6 as well, but I think we might be able to save that discussion
7 for later.

8 COMMISSIONER JABER: Mr. Chairman, I know
9 Commissioner Bradley had a question, and after --

10 CHAIRMAN BAEZ: And my apologies, Commissioner
11 Bradley, I have kept you waiting for way too long. You go
12 ahead and ask your question.

13 COMMISSIONER JABER: Mr. Chairman, after Commissioner
14 Bradley I have a follow-up.

15 COMMISSIONER BRADLEY: And maybe I have missed
16 something, but we have had somewhat of a discussion about the
17 politics at the FCC, and maybe what the prognosis is with
18 respect to what they may or may not do. And maybe I missed
19 this, but what will the FCC, what are they considering, line
20 sharing under 251 or line sharing under 271? And I heard
21 someone allude to 271, but --

22 MR. WATKINS: The petition for forbearance is under
23 Section 160 of the act, which is if the FCC decides that 271
24 has been fully implemented and it is in the public interest not
25 to oblige a Regional Bell Operating Company, like BellSouth, to

1 provide access under these independent checklist items, like
2 line sharing, or loops, or transport switching, it can forbear
3 from enforcing that obligation.

4 CHAIRMAN BAEZ: Put simply, the question before the
5 FCC is whether 271 obligations, at least respecting broadband,
6 are going to survive despite what would have otherwise been a
7 deletion of sorts, or a negation of sorts under 251. Is that
8 fair enough to tee up?

9 MR. WATKINS: Yes.

10 COMMISSIONER BRADLEY: My question is, I mean, what
11 is the FCC -- I heard what was stated about Verizon and what
12 they have put before the FCC, but I'm going back to
13 Commissioner Davidson's statement and question. Is the FCC
14 going to given consideration to -- well, is their decision
15 going to be based on 251 or 271?

16 MR. WATKINS: Commissioner Davidson was kind of
17 asking, I think, about the next round of rules, and that will
18 be probably on both. In fact, I believe the public notice of
19 rulemaking said that they will address 271 obligations and
20 revisit some of those obligations that were vacated by the
21 circuit court in the District of Columbia.

22 BellSouth's petition for forbearance is not under the
23 same time crunch as the Verizon. Verizon's was filed much
24 earlier. But BellSouth says expressly we are asking for
25 exactly the same thing that the Verizon petition asked for. So

1 ruling on that one is essentially ruling on the BellSouth one.

2 CHAIRMAN BAEZ: Ms. White, this is an opportunity to
3 confirm what Mr. Watkins has said. Is his statement fair that
4 you, in essence, are requesting that your request for
5 forbearance or your petition for forbearance before the FCC is
6 essentially the same?

7 MS. WHITE: Yes. It is essentially the same. But he
8 is absolutely correct, it is not on the same time line as
9 Verizon's.

10 CHAIRMAN BAEZ: Understood. Okay.

11 Commissioner Bradley, did you have more questions?

12 COMMISSIONER BRADLEY: Well, does anyone know what
13 the price model is going to look like if the FCC decides that
14 line splitting should remain intact?

15 MR. WATKINS: If the FCC decides under 251(c)(3), it
16 will be the UNE prices, the TELRIC prices that the Commission
17 has already addressed and exist. If it finds either in the
18 response to the petition for forbearance or in the new
19 proceedings that line sharing should continue to exist as a 271
20 obligation, that would be under the just and reasonable rate
21 that they have set out some general parameters for identifying
22 what that is in the triennial review order. That was not
23 appealed or addressed by the parties or addressed by the
24 Circuit Court in the District of Columbia. So whether that is
25 higher, lower, or somewhere in between we don't know, but may

1 get to later.

2 COMMISSIONER BRADLEY: The reason why I asked that
3 question is if we decide that line splitting needs to be at
4 least in place temporarily until the FCC renders a decision,
5 I'm trying to figure out which price model might be suggested.
6 It seems like TELRIC is out. How would we cost out?

7 MR. WATKINS: Mr. Chairman, may I address that? This
8 is not necessarily a legal answer, but it is a very functional
9 answer. The parties are in arbitration over the continued
10 access to line sharing, or the provision of line sharing after
11 two days ago, or yesterday. This is round one in our
12 arbitration. It is a legal question that has been submitted to
13 the Commission. We have got a lot more to go through before --
14 in a functional sense, BellSouth has agreed to live by its
15 interconnection agreement until legally changed. The
16 interconnection agreement is not being changed by the order
17 that we are talking about today. It is simply going to help
18 guide the parties towards a resolution.

19 And so in a functional sense, we are probably at
20 least a month, probably a lot more away from any change to line
21 sharing, its pricing, or anything else. At which time we may
22 have this kind of rolling new regulatory world that we are
23 going to be living in. If the FCC forbears expressly from line
24 sharing, and we have got a very different debate going on
25 between the parties than has been going on to date.

1 Conversely, if they expressly say line sharing is a 271
2 obligation and we are not forbearing from it, we still have a
3 very different negotiation going on between the parties. And
4 that negotiation will go on and has gone on for a long period
5 of time. So in a functional sense, we are probably going to be

6 reaching the final rules from the FCC, absent something
7 extraordinary, by the time that we are implementing the change
8 of law associated with line sharing that we are here at the
9 beginning of right now.

10 CHAIRMAN BAEZ: Commissioner Jaber, you had a
11 question.

12 COMMISSIONER JABER: A series of questions, Mr.
13 Chairman, and then I think I would be ready to take action if
14 the other Commissioners were.

15 Mr. Criser, you came up to the bench, that is always
16 dangerous, but I want to ask you something based on what you
17 said. You said we would hate to ask you, as a state, to wait
18 on the FCC. But you have, in the past, on very similar issues.
19 And I'm trying to get straight in my mind why this would be a
20 different situation. And I will give you the foundation for my
21 question, and then I have some follow-ups.

22 The foundation is this. Where we knowingly are aware
23 that there are actions pending at the FCC that could result in
24 our state action being undone, or creating uncertainty, I think
25 we all should work collaboratively to wait for that certainty.

1 You have to adjust your business model, and your business
2 strategy, and they have got to adjust their business model and
3 their business strategy. I'm concerned about. I'm concerned
4 about taking that away from both companies.

5 It seems to me that there is an opportunity here to
6 maintain status quo in the interest of allowing, or not getting
7 in the way of market stabilization. So react to that and then
8 I've got some follow-up questions.

9 MR. CRISER: I guess, first of all, I will say -- and
10 I probably should have recognized who I am when I first came up
11 here, and I apologize for that. For the court reporter, I'm
12 Marshall Criser with BellSouth.

13 If I said we would hate to ask you, I apologize for
14 that. I wasn't practicing my words coming up here. What I
15 really did want to convey, though, is that sometimes it is
16 dangerous to suggest to you that you should wait. And my
17 concern was that I'm not convinced that the finality that is
18 being suggested is out there. I'm not convinced that the order
19 that has not been seen yet that is not scheduled on an FCC
20 agenda at this time is going to resolve this matter in 30 days.

21 COMMISSIONER JABER: What about 60 days?

22 MR. CRISER: I understand that there are procedural
23 remedies that would allow -- from what I heard in some brief
24 homework this morning there are procedural remedies that could
25 allow the FCC to take more than 30, more than 60, I don't know

1 how many more days to do that. I honestly couldn't represent
2 to you what that process would look like.

3 I will say this, though. Our intent was to not come
4 in here this morning and suggest to you that if you wait 30
5 days all of this will be resolved and we can get past this
6 issue. With that said, if this Commission believes that, you
7 know, waiting an additional 30 days to see if this order
8 resolves this, you know, which is a fairly narrowly defined
9 issue, but if it is -- you know, 30 days, I will get caught at
10 some point as to what point I'm being unreasonable -- but if 30
11 days solves this, if this Commission would like to take the
12 benefit of 30 days to see what happens if this FCC order does
13 come out by their deadline, and if it does lend some light on
14 this issue, BellSouth is not opposed to that.

15 COMMISSIONER JABER: Mr. Criser, let me just say,
16 because I don't want you to misunderstand. I don't agree that
17 30 days will solve it. So let's think about that. If I were
18 to support the notion of maintaining the status quo until the
19 end of the year, what would your reaction be?

20 MR. CRISER: My suggestion to you would be that I
21 believe you have got an issue in front of you that ought to be
22 resolved, and that I think it is fairly narrow, and it has been
23 well articulated, well discussed, and that the staff
24 recommendation in front of you is the appropriate response to
25 it.

1 COMMISSIONER JABER: Okay. Let's do some follow-ups
2 on FCC proceedings. Someone needs to remind me, and, Covad, at
3 the right time I do want you to respond to all of this. I
4 could have sworn that the Chairman of the FCC came out after
5 the triennial review order was issued and said that he was very
6 interested and, in fact, was working on a separate line sharing
7 order. Is that not accurate?

8 MR. WATKINS: My memory is Chairman Powell wrote a
9 letter to Chairman Copps trying to bring him into a vote on the
10 interim rules to say that we are going to hold line sharing in
11 abeyance, any action on line sharing in abeyance for a period
12 of time in hopes of bringing him in on a concurrence on that
13 point. And I think that was part of the politicking going on.
14 And it is my understanding that that debate continues.

15 COMMISSIONER JABER: And wasn't there a commitment
16 made that that order could be issued by the end of the year?

17 MR. WATKINS: The stated goal of Chairman Powell, I
18 believe, is that the end of December is the -- they want to try
19 to get the final rules out by the end of December. I think in
20 their briefings to the district court in response to the
21 mandamus petition from USTA, they were saying that they were
22 aiming to get this out by the end of December.

23 COMMISSIONER JABER: And, Mr. Criser, the last series
24 of questions go to the market stabilization and certainty. Do
25 you agree with me that it is quite possible if we take action

1 today we could put ourselves in a situation where -- and I
2 don't know what the vote would be, obviously, but where it is
3 conceivable that we find you have a 271 obligation. Let's set
4 pricing aside, but you have a 271 obligation to provide access,
5 and that brings you in under the RBHC umbrella and 271
6 obligations, but that access wouldn't be something that a
7 Verizon or Sprint would have to comply with. That is quite
8 conceivable. That we take action today that applies to you but
9 not to the other ILECs.

10 MR. CRISER: I would agree that any decision that is
11 in front of you, you know, the possibility is there that it
12 would go contrary to what my company's position is, and that
13 that decision may affect my company differently than it does
14 other companies.

15 COMMISSIONER JABER: But is that the case at the FCC?
16 If we try to facilitate a decision today that maintains status
17 quo, isn't it true that the FCC is looking at it more globally,
18 more nationally, and whatever policy they come up with will
19 impact all companies, should impact all companies alike?

20 MR. CRISER: I would agree that the FCC is looking at
21 this issue. The only correction I would make to what Covad has
22 represented to you is that I know that the FCC has also put a
23 plan in place in the event that they don't make a decision by
24 the end of the year.

25 COMMISSIONER JABER: Which is?

1 MR. CRISER: Which is they have set up a staggered
2 rate structure that essentially says if we don't make a
3 decision by a set date, then here is the rules that will be in
4 place for the following six months.

5 COMMISSIONER JABER: And didn't that come with an
6 NPRM?

7 MR. CRISER: Yes, ma'am.

8 COMMISSIONER JABER: So it is not really final.

9 MR. CRISER: I will certainly acknowledge that there
10 is a lot of discussion that is going on in Washington right now
11 that relates to these issues. And I'm very uncomfortable
12 trying to tell you when I think there would be a decision that
13 is dispositive on this particular issue.

14 COMMISSIONER JABER: Mr. Chairman, I'm done with my
15 questions, but I need to allow Covad to respond to the
16 questions I have asked.

17 CHAIRMAN BAEZ: Mr. Watkins, if you will just hold on
18 for two seconds, I promise I will get to you. Commissioner
19 Bradley, I heard Commissioner Bradley speak up, he had a
20 question.

21 COMMISSIONER BRADLEY: Right. And I don't know if
22 Commissioner Jaber was alluding to this or not, but basically
23 what we are dealing with here is the fact that the FCC has done
24 away with line sharing or line splitting. The FCC also, as a
25 part of that, created a transition period of three years to

1 allow DSL companies to make a transition. I think that is
2 probably what Mr. Criser alluded to. Is that what you were
3 alluding to was the three-year transition period?

4 MR. CRISER: Yes, sir.

5 COMMISSIONER BRADLEY: Where are we right now with
6 respect to the three-year transition period, and what is the
7 impact of the transition upon the market forces out there?

8 MR. CRISER: I believe we are in the second year of
9 the three-year process. And what they have established is
10 cut-off points at points when new customers can be added and
11 grandfathered, and then rate structures that can be used going
12 forward.

13 COMMISSIONER BRADLEY: Okay. Now, my other question
14 is this, and I really don't like to crystal ball anything, but
15 can anyone tell me what the FCC is going to do?

16 MR. WATKINS: That was actually going to be the first
17 thing I was going to say, because I want to make sure that it
18 is crystal clear.

19 COMMISSIONER BRADLEY: Does anyone know what the FCC
20 is going to do?

21 MR. WATKINS: The one thing I can say is that line
22 sharing will certainly be addressed by the time the final rules
23 come out. I can guarantee that somehow line sharing will be
24 addressed in the final rules. Whether it gets in the petition
25 for forbearance that we are talking about coming up soon, I

1 cannot say. Whether by the end of the year they are going to
2 get their final rules out that it is going to say it then, I
3 cannot say. Whether the petition for forbearance, if it does
4 come out, is a model of clarity and says anything about line
5 sharing, I cannot say.

6 On the statutory maximum, my understanding is for the
7 petition for forbearance, October 22nd is the deadline. If
8 they cannot get the votes to have an order out, they have got
9 to vote for up to a 90-day extension, and that is the maximum.
10 That is my understanding. I talked to my counsel this morning
11 about that. So I believe the maximum period on Verizon's
12 petition for forbearance, which is the one that BellSouth has
13 copied, the maximum you are looking at would be October 22nd
14 plus 90 days for an order on that subject.

15 COMMISSIONER BRADLEY: Okay. So can you predict that
16 the FCC is going to pass an order that would allow for the
17 continuation of line sharing, or that the FCC might pass an
18 order that upholds the status quo?

19 MR. WATKINS: No. I wish I could. And if I could
20 promise anybody that they would extend line sharing in the
21 final rules in the petition of forbearance, we would have a
22 significantly higher stock price.

23 I mean, but in addition -- I mean, part of the
24 concern here is that we have got 10,000 line sharing customers
25 in the state of Florida. A large number of those have been

1 added in the past year. Under the transition mechanism, the
2 price for those people is not based on a UNE price. There is a
3 lot of grandfathered people, and they are living with the UNE
4 price. But for the people who have gotten it in the last year,
5 those people who have decided -- and this is through all of our
6 partners, AOL, EarthLink, they don't know that it is Covad a
7 lot of times. They are going to get a call, if we have these
8 transition mechanisms in place, that that price is going to
9 start getting ratcheted up for them. Because that goes from
10 line sharing to a stand-alone loop, which is significantly more
11 expensive, and not realistically a product that can be serving
12 residential broadband in a line sharing circumstance.

13 COMMISSIONER BRADLEY: Right. And this is a free
14 market force question. Is there a possibility that Covad and
15 BellSouth can have a discussion that results in an agreement
16 that resolves this issue.

17 MR. WATKINS: Yes. We are in those talks right now.
18 We have been in those talks for coming up on over a year. And
19 we have come to those agreements with the other three Regional
20 Bell Operating Companies in this country. It is our strongest
21 desire and belief that that is the way that the parties should
22 resolve this.

23 COMMISSIONER BRADLEY: Okay. Well, let me ask you
24 one other question. Why haven't you all resolved the issues so
25 that we will not have to participate in this discussion?

1 CHAIRMAN BAEZ: Yes, why?

2 MS. WHITE: If I had the answer to that, I would be a
3 very, very wealthy woman in Nice, France somewhere, and I
4 wouldn't be here.

5 CHAIRMAN BAEZ: Me, I just want to win the football
6 pool once. That's all.

7 MS. WHITE: But I would like to say that, you know,
8 Mr. Watkins mentions the customers that they have added in the
9 past year, but Mr. Watkins and his company have been very aware
10 of this transitional plan and what was going to happen since
11 August of 2003, so it is not like it is brand new to them.

12 MR. WATKINS: That gets directly to what your
13 question was, and that is we have been aware of what the FCC
14 ordered for ILECs under 251. The question is for RBHCs who
15 have, we believe, a very clear 271 obligation, what is their
16 obligation? And we have been passing like ships in the night
17 over that subject. And, you know, I can't say what the status
18 of the negotiations are, what holds them up. But, I mean, we
19 have got two very different opinions about what the status of
20 line sharing is. And if you can wait one year and be done with
21 it, you don't have a lot of incentive to negotiate. Because
22 why enter into a three-year negotiation when you can be done
23 with your competitor in one year.

24 CHAIRMAN BAEZ: And that is why the questions are
25 teed up all over town.

1 Commissioner Deason.

2 COMMISSIONER DEASON: If we give you guidance today,
3 is that going to facilitate your negotiations to a market rate
4 settlement of the issue?

5 MR. WATKINS: It could, it definitely could. Because
6 we do business with BellSouth in seven states, Florida is one
7 of them.

8 COMMISSIONER BRADLEY: If we give them what?

9 COMMISSIONER DEASON: If we give them guidance today
10 by making a decision, would that facilitate --

11 MR. WATKINS: I'm sorry.

12 COMMISSIONER DEASON: I was just explaining --

13 MR. WATKINS: We have staff recommendations from
14 Louisiana and North Carolina that go our way, we have an
15 unclear vote from the Tennessee Regulatory Authority that at
16 least seems to be ordering the parties to implement the
17 transition period. So the reality is no matter which way this
18 Commission goes, whether it holds off, votes yes or no on this
19 subject, we are going with to have differing -- apparently
20 differing orders from commissions coming up.

21 COMMISSIONER DEASON: And that leads me to my second
22 question. What is the practical effect of a decision that is
23 made today, what happens?

24 MR. WATKINS: The parties will go back and negotiate
25 with each other. We have agreed, and we have represented to

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1 the staff that we will take the order as it comes down. We
2 will move for reconsideration. There will be a period of the
3 normal legal wranglings. But then after that we will
4 definitely -- well, before that we will be sitting down with
5 BellSouth as we have been trying to do for over a year now to
6 try to come up with a solution that is permanent on line
7 sharing.

8 COMMISSIONER DEASON: The third part of my question.
9 Assuming we make a decision today, and six months from now the
10 FCC does something contrary to what we have decided, what
11 effect does that have on our order and how does that effect you
12 as a competitor?

13 MR. WATKINS: It would trigger the change of law
14 provisions in the parties interconnection agreement, and we
15 would have to come back and say the order that we have gotten
16 in the arbitration on how to amend the interconnection
17 agreement has now been reversed in its legal basis by the FCC,
18 and go through this whole rigmarole again, and go through the
19 whole process again.

20 COMMISSIONER DEASON: Our decision today, it would
21 have effect until the FCC makes a decision, or is the FCC
22 decision retroactive back to where our decision has no meaning?

23 MR. WATKINS: In the triennial review order, the FCC
24 expressly declined to do that type of thing. They have in the
25 interim order, however, stated that they are not going to

1 retroactively apply the new rates.

2 COMMISSIONER DEASON: So our decision would have an
3 effect maybe for a short period of time, but nevertheless would
4 most likely have an effect.

5 MR. WATKINS: If implemented following the remainder
6 of this arbitration and order, we would certainly be having to
7 reserve, at least, for those customers who have gotten line
8 sharing since October of last year at a minimum. At a maximum,
9 we would have to start notifying them that they may be --

10 COMMISSIONER DEASON: But if you negotiate an
11 agreement which provides you paying a rate which BellSouth
12 accepts and they agree to provide you the service that you
13 need, it doesn't matter what we say or what the FCC says,
14 correct?

15 MR. WATKINS: That is correct. You will see me far
16 less, fortunately and unfortunately.

17 CHAIRMAN BAEZ: Thank you, Commissioner.

18 Commissioner Davidson.

19 COMMISSIONER DAVIDSON: Thank you, Chairman.

20 Mainly a few comments. At the outset, I support some
21 type of whether we call it deferment or postponing the issue
22 for some amount of time. I think at least a colorable claim
23 has been made that there are 271 obligation. Whether that
24 claim prevails or not, I don't know.

25 As I have stated from the get-go, I think it is very

1 important to have a national policy on these issues as opposed
2 to a patchwork of different state approaches. And I think that
3 applies with equal force not to just the switching issue, but
4 also to sort of broadband policies. I think it applies
5 specifically to this 271 versus 251 issue. So I think having
6 some national policy is an important state goal, and I hope we
7 can get to that at some point in the next decade. I know we
8 have had round after round.

9 But I think Florida's interest is both in having a
10 national framework, but also in avoiding major disruptions to
11 its own market and to its customers. I think we have an
12 obligation that we have tried to meet to provide for a
13 manageable transition of the market, to the extent we have a
14 role, from where it is now to wherever it should be.

15 Companies have relied on vehicles such as line
16 sharing and UNE-P in providing services. And, in my view, we
17 don't want to sort of flash-cut from now to some new model
18 without providing some sort of manageable transition. I think
19 what we risk if we just say, okay, well, the law has changed
20 with USTA I, USTA II, after the appeal, if we try and react
21 really quickly after those decisions we run the risk of putting
22 some company, and thus its customers, the consumers of the
23 state of Florida, at harm. Also, I recognize completely that
24 BellSouth has strong arguments on this point. Covad has strong
25 arguments on this point.

1 In my view, we ought to -- and this is not really a
2 motion yet -- but we ought to sort of refrain and defer this
3 issue until some date certain. Me, personally, I don't have a
4 problem with deferring some of these transitional issues until
5 such time as the final rules come out, because until the final
6 rules come out we don't know what the rules will be. And if we
7 react and change Element X or change Element Y and we are
8 ultimately wrong, it may be very hard for somebody to come back
9 into the market. I mean, so if we today sort of said, all
10 right, BellSouth, you win on the line sharing issue, and then
11 we are ultimately wrong, well, it may be too bad for the
12 consumers of Covad. So I throw that out there. I am more
13 focused now on the time frame for this deferment of decision.

14 CHAIRMAN BAEZ: If you are gearing -- I don't know
15 that we need a motion, an actual motion to defer, Commissioner,
16 but if that is what you are gearing up with, I want to get a
17 couple of questions out only because I have been holding them
18 in for all of this time.

19 First, Mr. Criser, you mentioned earlier that there
20 was -- you made a comment about the finality of this. I mean,
21 we obviously had a lot of questions about these pending
22 petitions for forbearance, and I think you did a good job of
23 not holding our hopes, getting our hopes up that this would be
24 the end-all be-all as part of a decision, but I would ask the
25 question another way. Do you recognize the potential for those

1 decisions to undo, somehow, the Commission, the state
2 commission's work?

3 MR. CRISER: I believe that, yes, a federal decision
4 could preempt the state commission's decision. I think I would
5 also, though, go back to a point that I think was made earlier
6 which is, you know, we are, in fact, in the middle of a
7 transition period on this policy. And it is the ability to
8 continually look to the future for resolution that really keeps
9 us from the table in terms of being able to negotiate
10 commercially and come to some kind of an agreement in terms of
11 the terms of what this business ought to look like.

12 You know, with that said, part of the reluctance
13 coming in is that, if I took this in stages, you know, there is
14 an expectation that the FCC will have an order out by October
15 22nd. Certainly if we absolutely believe that that was going
16 to happen, and that is what I was trying to determine this
17 morning, if there was some evidence that that was actually out
18 there, that would be one thing.

19 I think there is another issue, which is if we came
20 back in front of an agenda and there was actually an order out
21 there that someone could look at and say that addresses this
22 issue. You know, we can take this in stages. But I'm
23 concerned, by the same token, that that is the signal to
24 continue to sort of throw in the next question, and we stay
25 away from the ability to sit down and really work out

1 commercial agreements on how this business ought to be run.

2 CHAIRMAN BAEZ: And on the question of commercial
3 agreements, and I have, I guess, any one of -- Mr. Watkins, or
4 Ms. White, or Mr. Criser can answer this question. Mr.
5 Watkins, you alluded to other similar decisions in other
6 jurisdictions some of which went one way, some of which went
7 another. Do I detect some kind of score keeping? I mean, I'm
8 assuming that you all are -- Covad negotiates on the BellSouth
9 footprint, not in Florida, not in Mississippi, not in Georgia,
10 specifically, and I'm pretty sure that's true.

11 MR. WATKINS: Yes, the negotiations for the state.
12 The region, excuse me.

13 CHAIRMAN BAEZ: So I guess I have to ask -- and I'm
14 only being half facetious here -- is it going to matter at some
15 point on what column we fall as a Commission? Because I really
16 am trying to gauge what the value of all of this is. I will be
17 candid with you. My concern, as has been expressed by, I
18 think, at some point all the Commissioners up here, and a few
19 that are no longer with us on the bench, that there is a great
20 sense of frustration over a back and forth. I mean, yes,
21 putting out -- that is true, I will only speak for myself.
22 But, you know, putting out today's fire or not, you know, and
23 then just having all that hard work undone. And I think, you
24 know, we had an item earlier this morning that is at least in
25 part brought about by this regulatory cha-cha. You know,

1 having to react, or do or undo as the FCC goes. I mean, you
2 get my meaning.

3 MR. WATKINS: Absolutely.

4 CHAIRMAN BAEZ: So I guess I'm trying to gauge
5 exactly what value is. If we are negotiating, in fact, on a
6 BellSouth footprint, then exactly how does our decision one way
7 or another affect the tide, or the momentum in that kind of
8 negotiation.

9 MR. WATKINS: The commercial negotiations are taking
10 place at a pay grade well above me, and so I cannot say what --

11 CHAIRMAN BAEZ: I'm sorry to hear that.

12 MR. WATKINS: You know, from your mouth to God's
13 ears.

14 CHAIRMAN BAEZ: I'm trying to help.

15 MR. WATKINS: But the reality is this Commission is
16 very well respected in the nation. And what the staff has
17 recommended you order here would be the first in the nation on
18 this subject. The first to go that way, which is they don't --
19 line sharing has never been in Checklist Item 4, which is what
20 the staff recommendation is. I handed you something, and I'm
21 ready to talk about it if we need to, but all of those states
22 that I have referenced, the Tennessee Regulatory Authority has
23 not said it is not a Checklist Item 4, they just simply --
24 their debate and their vote, I think the transcript has been
25 provided to you, was not very clear about what they were voting

1 on or why they were voting on it. Well, it's true.

2 CHAIRMAN BAEZ: Jane, can we get that struck somehow?

3 I don't know.

4 COMMISSIONER BRADLEY: I want to ask staff a
5 question.

6 CHAIRMAN BAEZ: I see your point.

7 Commissioner Bradley, go ahead.

8 COMMISSIONER BRADLEY: You mentioned the scorecard,
9 or at least someone did. Which states have decided to continue
10 line splitting, and which ones have decided to not continue
11 line splitting. And maybe I'm confused about what was just
12 stated, but he said that Florida would be the first, if we
13 follow staff's recommendation. And that wasn't my
14 understanding.

15 MS. WHITE: Commissioner, essentially Maine has
16 decided that it doesn't need to reach the 271 issue. North
17 Carolina and Louisiana have not ruled yet. Tennessee
18 essentially ordered the transition plan, but said we are not
19 going to reach the 271 issue. Georgia said we are going to
20 defer and talk about the 271 issue in a whole another docket.
21 Kentucky has been argued but no vote yet. And Pennsylvania,
22 essentially that was a little bit of a strange one because
23 Verizon had a tariff in place, and essentially that Commission
24 said we are not going to let Verizon withdraw that piece, that
25 line sharing from their tariff until the FCC addresses the

1 issue of whether 271 still requires Verizon to do it. So, yes,
2 everybody is keeping score, but it is not an easy score card.

3 CHAIRMAN BAEZ: I'm sorry to interrupt, but does
4 anybody have qualms about having a state commission make a
5 determination on interpreting a federal -- what requirements
6 are in a federal act on an issue that we were only authorized,
7 or only had authority to render an advisory opinion for
8 acceptance by the FCC in the first place? I mean, I'm not
9 sure. I hate to throw this question out there after we have
10 been at it for maybe an hour or so, but why are we blessed with
11 having to make this decision, why are we so honored.

12 COMMISSIONER JABER: Because you are a highly
13 respected Commissioner.

14 CHAIRMAN BAEZ: Beyond the highly respected part.
15 And I've got to tell you, if it were that way, the folks in
16 Washington would say, well, Florida said this, hey, sounds
17 good. Let's not --

18 MR. WATKINS: The Commission's jurisdictional basis
19 to consider this type of question is conferred in the federal
20 act under Section 252 as part of the Commission's overall
21 authority to approve and examine and arbitrate interconnection
22 agreements. This particular issue comes to you because the
23 parties agreed to talk about it in the context of the
24 negotiations over the amendment itself.

25 CHAIRMAN BAEZ: And does the animal exist that cannot

1 be presented or couched within the context of an arbitration?

2 Because I think if it does, this one starts looking like it.

3 MS. WHITE: Yes. I mean, essentially it is an
4 arbitration brought by Covad. This is an issue that came up
5 within that arbitration, of course you have authority over
6 arbitrations. And this is an issue, unfortunately, that is
7 kind of one of those bad ones all the way around, and involves
8 the FCC, and it involves other states.

9 CHAIRMAN BAEZ: Because I can hear the arguments one
10 way or the other, you know, three months from now, saying, you
11 know, Florida, you had no authority to do this. This is
12 interpretation of a -- I mean, this is interpretation of a
13 federal statute. I mean, where is the authority for that.

14 MR. WATKINS: To the extent that the Act, itself,
15 charges you with its implementation, then absent either a court
16 or the FCC doing the interpreting for you and saying here is
17 what we think this means, or here is how we plan to implement
18 this as part of the statutory scheme, this Commission has that
19 obligation. Or not obligation, excuse me, authority under 252
20 to arbitrate this issue. Then you need to follow what the
21 court or the FCC says, in our opinion.

22 CHAIRMAN BAEZ: But isn't really that question
23 answered by the fact that you can petition for forbearance from
24 271 obligations to the FCC? I mean, doesn't that fix the
25 location of where this question properly has to be? And,

1 again, I mean, I think, you know, the word arbitration gives us
2 a lot of license, and sometimes it is a good license to have,
3 sometimes it is not. I'm not convinced that in this case --
4 you know, I've got to be honest with you, I'm with Commissioner
5 Davidson on this, I'm not sure that we need to be answering --
6 certainly not now -- I'm not sure that we need to be answering
7 this question at this point. But, you know, there it is.

8 MR. WATKINS: The forbearance petition only applies
9 if it is an obligation. And the debate between the parties is
10 is it an obligation. And so that is, again, this whole
11 circular problem that we are in with the negotiation, legal
12 requirements.

13 CHAIRMAN BAEZ: A wise person earlier said it is a
14 chicken and egg question. Well, you know --

15 COMMISSIONER JABER: I can make a motion, and take
16 discussion on it, because I welcome feedback on the motion.

17 CHAIRMAN BAEZ: Commissioner Bradley.

18 COMMISSIONER BRADLEY: Before you make a motion, I
19 would like to put something out there.

20 COMMISSIONER JABER: Commissioner Bradley, can I ask
21 a clarifying question, and it is this: Ms. White, and to
22 staff, if we were to consider holding off for some period of
23 time, procedurally speaking, what is it you need the motion to
24 be to address that October 1st date? Or, alternatively, if you
25 thought that is what the vote would be, is there something you

1 would consider doing voluntarily? Let me let you all talk
2 about that, think about that.

3 The question to staff is procedurally, if that were
4 the will of the Commission, it seems like you need something
5 more than a deferral to address that October 1st date.

6 Commissioner Bradley, I apologize. I thought that
7 that was sort of important to the discussion.

8 COMMISSIONER BRADLEY: Right. And what I was going
9 to put out there is -- well, what I consider as being three
10 options. We could choose to defer action, or defer a decision
11 on this docket until the FCC decides the petition, and I don't
12 know if that is the correct thing to do, or we could grant
13 Covad continued use of line splitting, or go to the staff
14 recommendation making it clear that our decision will and could
15 change depending on how the FCC decides.

16 But I see some risk in trying to predict what the FCC
17 is going to do. Bodies send all sorts of messages. But until
18 they actually make a concrete and specific decision, then we
19 really don't know what we are dealing with. And I will tell
20 you why I'm making my statement. If we decide to defer, and
21 the FCC decides to maintain the status quo, what position does
22 that put Covad in in terms of its financial obligations to
23 BellSouth? If we defer and the FCC decides to maintain line
24 splitting, what does that do to the financial obligations that
25 are going to be created?

1 And what I'm seeing is there is going to be a
2 disagreement between the two parties regardless of what we do.
3 That's why I suggested that maybe you all might want to get
4 together and work out an agreement or some language that both
5 of you can live with during the interim. And I think pricing
6 would have to be a part of that discussion. But I just can't
7 predict what the FCC is going to do, so I am inclined to go --

8 CHAIRMAN BAEZ: You're not alone.

9 COMMISSIONER JABER: Commissioner Bradley, for
10 whatever it is worth to you, I agree with you. But I also
11 agree with everything Commissioner Davidson said with regard to
12 even trying to understand what the ultimate final rules will
13 be. I think it goes even beyond these forbearance petitions.
14 Something, thankfully, we haven't touched on today, but I'm
15 concerned about it, once the FCC issue is resolved as it
16 relates to forbearance, that has not yet addressed -- those
17 vehicles do not yet address whether state commissions have
18 their independent state authority to unbundle elements. And
19 I'm not suggesting we get into that discussion today.

20 My point is this: I think that until these
21 strategies are decided once and for all through final rules --
22 really, all kidding aside, these companies having put in a very
23 awkward situation through, to some degree, no fault of their
24 own, but certainly through no fault of state commissions. The
25 FCC promised all of you certainty. And you know what, I want

1 them to give that to you. So I intend to make a motion to give
2 them --

3 CHAIRMAN BAEZ: Commissioner.

4 COMMISSIONER JABER: -- exactly the opportunity.
5 Now, what I need answered for me is procedurally what kind of
6 motion should that be.

7 CHAIRMAN BAEZ: And while they are figuring up the
8 answer, Mr. Dowds, I know that Commissioner Deason had a
9 comment or a question.

10 COMMISSIONER DEASON: Well, I appreciate the
11 discussion we have had, but I think we need to move along. And
12 I just want to make kind of a brief comment. In my humble
13 opinion, it is not the job of this Commission to try to predict
14 what the FCC is going to do. We are placed in this situation
15 because of a failure of the FCC to provide clarity to this
16 issue. We are here under our arbitration jurisdiction. So be
17 it. I think we need to make a decision. We need to move this
18 forward. It gives some clarity, maybe it a minute amount of
19 clarity in this very murky issue, but for whatever benefit it
20 may have, it gives some clarity to the issue, it perhaps breaks
21 the stalemate to some extent to allow the negotiations to go
22 forward that we all want to have.

23 So I'm going to be against any type of deferral.
24 This is within our jurisdiction. It has been placed before us.
25 It is here because the FCC has not acted. We cannot predict

1 what the FCC is going to do. We need to do what we think is
2 right, and then let the parties react accordingly, and then let
3 the FCC do whatever they are going to do when they do it.

4 CHAIRMAN BAEZ: Commissioner.

5 COMMISSIONER DAVIDSON: Mr. Chairman.

6 CHAIRMAN BAEZ: Are you rising for a motion or --

7 COMMISSIONER DAVIDSON: No, I just wanted to offer a
8 comment in response to Commissioner Deason, if that is
9 appropriate.

10 CHAIRMAN BAEZ: Go ahead.

11 Mr. Dowd, I know we are going to get to you
12 posthaste. Thank you.

13 COMMISSIONER DAVIDSON: I agree with 95 percent of
14 what Commissioner Deason said. I would support a motion for a
15 deferral, and here is why. I agree with Commissioner Deason,
16 but I feel that we cannot address, sort of, this issue in
17 isolation. There are lots of issues related to the TRO, the
18 transition, what our responsibilities are for managing the
19 transition from the old regime to the new regime. And in my
20 view, we can't just sort of have a two-party docket piecemeal
21 by piecemeal to address, all right, is there a transition, what
22 do we need to do about UNE-P, what do we need to do about hot
23 cut, what do we need to do about the 271 issue.

24 I agree that we have issues that we will have to
25 decide. We can't always punt. I agree with you

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1 wholeheartedly. But I will support a deferral, because I don't
2 think sort of a two-party docket is the vehicle by which we
3 should be making, sort of, these declarations. I would much
4 rather see, and I don't know if it is appropriate at some
5 point, a generic docket to deal with these issues, because we
6 have lots on the plate with regard to implementing the TRO, and
7 we are going to have more as soon as the final rules are out.

8 I mean, we have certain things now with the interim,
9 we will have more with the final. But I can support some
10 deferral because I think making a decision today is a very,
11 sort of, piecemeal approach to an issue that is not at all
12 piecemeal. It is sort of a comprehensive communications policy
13 that we have to focus on.

14 CHAIRMAN BAEZ: Thank you, Commissioner Davidson.

15 COMMISSIONER JABER: Mr. Chairman, it might be
16 deferral is not the right word, that's why I was asking those
17 procedural questions.

18 CHAIRMAN BAEZ: Yes, maybe that is not the proper
19 word. Mr. Teitzman or Mr. Dowd, you have a question before
20 you.

21 MR. TEITZMAN: Yes. If BellSouth indicates that it
22 will continue providing access to new line sharing arrangements
23 pursuant to their interconnection agreement, then a simple
24 deferral would be adequate. If BellSouth indicates that it
25 does not intend to continue providing access to new line

1 sharing arrangements, I would like to point out that the
2 parties interconnection agreement does not expire until
3 December 19th, 2004. So the Commission could defer the item
4 and require BellSouth to maintain the status quo pursuant to
5 the parties' interconnection agreement.

6 COMMISSIONER JABER: Ms. White, do you agree with all
7 of that? The question posed to you was procedurally if you
8 thought the will of the majority was to come up with a motion
9 to maintain status quo, what would you suggest?

10 MS. WHITE: I would say that -- two caveats and we
11 could live with that. One is that we would not be waiving any
12 of our arguments.

13 COMMISSIONER JABER: I'm sorry, I didn't hear you?

14 MS. WHITE: We would not be waiving any of our
15 arguments. And, two, is that if the FCC comes out and says
16 BellSouth and the other RBHCs never had a 271 obligation to
17 provide line sharing and the 251 obligation no longer exists,
18 then they will have added new customers during that time period
19 at a rate -- this gets into Commissioner Bradley's price
20 issue -- that, first of all, we didn't have to provide it to
21 them. So I guess I would want some kind of, I'm not sure if it
22 is a true-up or if it would be a look at what is owed for those
23 customers that were added on during that time period of the
24 deferral, if that makes sense.

25 COMMISSIONER JABER: Mr. Watkins, your reaction to

1 that.

2 MR. WATKINS: We have no problem with them preserving
3 their arguments, pending a more definitive statement from the
4 FCC on this subject. As far as the quote, unquote, true-up,
5 there is a transition period with pricing for customers that

6 have been added in the past year, that is being reserved right
7 now by Covad. So in terms of taking care of the ability to
8 pay, what would happen, we will live with whatever orders are
9 provided by the FCC, this Commission, or any other state
10 commission on that subject. In terms of my ability to hear or
11 agree that BellSouth gets whatever it is, dependent on what the
12 FCC says and how clearly they say it, it would be incredibly
13 speculative on my part, but also irresponsible. I would have
14 to see what the order says we have to do, and why we have to do
15 it, and how we have to do it. We will live --

16 COMMISSIONER JABER: Let's flesh this out a little
17 bit more, because I hear more in common than there are
18 differences now. What I think you just said for the remaining
19 year transition, there is already a pricing structure that you
20 have to live with.

21 MR. WATKINS: But no new orders.

22 COMMISSIONER JABER: I'm sorry?

23 MR. WATKINS: But no new orders. Orders under the
24 transition.

25 COMMISSIONER JABER: Well, if BellSouth agrees today

1 to maintain status quo, what pricing structure would you be
2 supportive of going forward?

3 MR. WATKINS: The interconnection agreement itself,
4 until amended, has to be lived with by the parties. The FCC is
5 fully cognizant of the arguments and debates that are going on
6 in the states over this subject. They are also fully cognizant
7 of all the other agreements that have been entered into by
8 other parties, and how those agreements will be interplayed
9 with by the new federal rules. And they have expressly
10 identified this interplay. I believe that they will be
11 addressing that question.

12 CHAIRMAN BAEZ: But Ms. White mentioned a scenario
13 where the 271 obligations, at least on this, were void from the
14 beginning. I mean, they never existed. That creates some
15 conflict with -- and maybe you disagree, but it seems to
16 create, at least, some question of what did you do in the
17 interim leading up to that. Maybe the prices that were
18 applicable, you know, there is some retroactivity there of
19 sorts. Now, you have inserted that there is a transition rate
20 that would apply. I mean, is that --

21 MR. WATKINS: Mr. Chairman, we have a contract with
22 BellSouth that has the rates in it. We have not ordered a
23 single customer under any 271 theoretical obligation of
24 BellSouth. BellSouth has represented on the national level,
25 and they have represented in several state commissions that

1 they will live by their interconnection agreements until they
2 are lawfully amended. That is the representation that we would
3 ask that they live by until they were lawfully amended.

4 CHAIRMAN BAEZ: Whatever that means?

5 MR. WATKINS: Absolutely. If the FCC says that gets
6 retroactively trued up, then retroactively trued up is what it
7 is.

8 COMMISSIONER JABER: Chairman, let me tell you why I
9 can live with that as a motion. It seems to me that both
10 parties have equal risks that way. If you are worried that the
11 FCC ultimately finds that there was no 271 obligation, then as
12 a side note, I don't know why we had to take great pains to
13 test it, but if they ultimately find that 271 was not, that
14 line sharing was not a 271 obligation, then you take a risk
15 continuing to market your same platform to new customers. They
16 have taken a risk by agreeing here today to continue to provide
17 line sharing access to you. I can live with that, Mr.
18 Chairman.

19 And my motion would be recognizing the statements
20 made by BellSouth and their commitment to continue to provide
21 access to line sharing, I don't know if we need to deny staff
22 and accept that as a motion, but I'm willing to do that.

23 CHAIRMAN BAEZ: Can staff clear us up on -- I mean, I
24 guess I'm unclear as to whether that is a condition that is
25 being proposed, or is that something that, you know, reliance

1 on the parties' representations is sufficient, or how does all
2 of that get folded into a decision for consideration, at least
3 a motion for consideration?

4 MR. MELSON: If I understood BellSouth's position, it
5 was that if you deferred they would continue to make new line
6 sharing arrangements available to Covad until there was some
7 future decision. I heard BellSouth saying they wanted a caveat
8 about a true-up. If you start going with all of those caveats,
9 you're almost going to have to, it seems to me, get into a
10 motion type situation, in which case the more appropriate
11 motion might be the one that Mr. Teitzman referred to, which
12 is, essentially, defer and say that the parties have an
13 existing interconnection agreement that is good through the
14 19th of December. Unless and until there is some subsequent
15 change, they will live by that agreement. That leaves open to
16 the parties to argue about whether a true-up is required if, in
17 fact, there is some other FCC decision or some other change.

18 COMMISSIONER DEASON: But what happens come December
19 19th and there is no guidance from the FCC?

20 MR. MELSON: I suspect the parties are back here.

21 MR. WATKINS: Commissioner Deason and Mr. Chairman,
22 in Georgia --

23 CHAIRMAN JABER: The issue of a true-up, and I guess,
24 you know, a true-up can work both ways. It can be less or it
25 can be more. And I'm trying to figure out why Covad is

1 somewhat, it would appear to me, to be against the true-up.

2 MR. WATKINS: Well, Commissioner Bradbury, we
3 actually have true-ups in our interconnection agreement for
4 certain items that are kind of out there in fluctuation. I
5 don't know if this is some of them or not.

6 CHAIRMAN BAEZ: But before we --

7 CHAIRMAN JABER: I was just wondering if Covad is
8 maybe predicting what the FCC is going to do by maybe not
9 agreeing to a true-up.

10 CHAIRMAN BAEZ: I don't know. But I will tell you
11 what, before we go down the true-up road, I'm not even sure
12 that we could order that. I don't know that we have that
13 authority to begin with. So I would caution against even
14 making that part of any discussion. Because I don't think that
15 is properly neither before us or left up to us, in my opinion.

16 COMMISSIONER BRADLEY: Well, let me ask this
17 question.

18 CHAIRMAN BAEZ: I don't know if we need it.

19 COMMISSIONER BRADLEY: And I know we are trying to
20 decide what the motion might look like, but if we go with
21 staff's recommendation, doesn't that mean that -- I mean, that
22 means also that the agreement is still going to be in force
23 until December. And if we all believe that there is a
24 possibility that the FCC might act between now and December,
25 that is more than 30 days.

1 COMMISSIONER DAVIDSON: You mean staff's
2 recommendation on the motion, not staff's written
3 recommendation on the agenda item.

4 COMMISSIONER BRADLEY: I'm referring to the
5 recommendation in the agenda item.

6 COMMISSIONER JABER: Then that is not correct.
7 Because staff's recommendation, as written, would actually
8 modify the agreement somewhat to eliminate line sharing.

9 COMMISSIONER BRADLEY: Right, it does. But they have
10 an agreement that goes through December, so --

11 COMMISSIONER JABER: But it wouldn't --

12 COMMISSIONER BRADLEY: -- would staff's
13 recommendation --

14 COMMISSIONER JABER: Supersede the part about line
15 sharing.

16 COMMISSIONER BRADLEY: -- make that agreement null
17 and void?

18 COMMISSIONER JABER: The part about line sharing.

19 MR. WATKINS: This is an arbitration to amend the
20 existing agreement. We are in negotiations now for the new IA,
21 and the arbitration window for that opens in November. We are
22 in a weird world, because we will also be probably negotiating
23 this same subject in that if we don't reach a commercial
24 agreement. Again, commercial agreement is where we want to go,
25 commercial is where we are trying to go. The fact that the

1 other -- none of the Qwest states ruled on this subject, and
2 the parties entered into a commercial agreement. None of the
3 SBC states ruled on this subject, and the parties entered into
4 a commercial agreement. Georgia sent this question to a
5 generic docket.

6 COMMISSIONER JABER: Mr. Watkins, I don't want to
7 digress.

8 (Simultaneous conversation.)

9 COMMISSIONER JABER: Commissioner Bradley, help me
10 out. Let me throw some language out and let's see where the
11 source of disagreement may be. If I were to make a motion to
12 deny staff on Issue 1 and allow the current agreement in its
13 entirety, which expires December 19th, 2004, to remain in
14 effect, recognizing that if the FCC were to make a finding that
15 line sharing was never a 271 obligation, there might be a
16 true-up mechanism, that that should remain on the table. That
17 that is an option that might come back to us.

18 Mr. Melson, what have I forgotten about what you and
19 Mr. Teitzman said? Does that capture everything you all said?

20 MR. MELSON: I believe it does, Commissioner Jaber.

21 The other alternative that -- and doing that, I
22 think, requires us to write an order that lays all of that out.
23 What I am not 100 percent clear is if the Commission simply
24 voted to defer, which does not require an order, would the
25 parties, as a practical matter, get to the same place and not

1 need us to write a lot of unnecessary words.

2 COMMISSIONER JABER: Well, I think this is
3 complicated enough, important enough that we should pose that
4 question to the parties.

5 Ms. White, I know I put you on the spot by asking you
6 procedurally what it was you needed to recognize your
7 willingness to try to maintain status quo. Do you have a
8 preference in terms of deferral or order?

9 MS. WHITE: With all due respect, I think we would
10 prefer the order.

11 COMMISSIONER JABER: You know, and I don't have a
12 problem with that, Mr. Chairman.

13 COMMISSIONER BRADLEY: Well, I think that the order
14 gives some clarity to our decision. And also, you know, giving
15 consideration to the fact that if the FCC rules in December, we
16 can always go back and make modifications or changes based on
17 what they do if they do, in fact, render a decision.

18 COMMISSIONER JABER: And, Mr. Watkins, I left you out
19 of that question, deferral or order. It seems like both
20 parties would want the order for whatever clarity you all feel
21 like it would provide.

22 MR. WATKINS: We would prefer an order. Just two
23 points. The first is the Georgia Commission sent this question
24 to a generic docket for the very reasons that have been
25 discussed here. That will be considered probably well after

1 December 19th, and also to address all the other transitional
2 mechanisms that are going on and will be coming in the final
3 rules. That is just point number one.

4 Point number two is when we went through the
5 nine-month docket, there was this question because of the
6 USTA II order and what was happening with the nine months at
7 the FCC. The parties all agreed, you know, we will come back
8 when we get something that is more clear and as things
9 progress. And we, I think, agreed that we would have an
10 informal conference call with the staff every month or two
11 months and say, okay, what's happening, what can we do.

12 That seems to me to be a way in which we can -- and I
13 would be very surprised if BellSouth wouldn't be willing to
14 say, okay, if an order on a petition for forbearance comes out,
15 let's both read it. If it is clear, we will come with a joint
16 proposed order that we can come up with that would resolve this
17 issue and you will never have to reach it.

18 COMMISSIONER BRADLEY: Mr. Chairman.

19 CHAIRMAN BAEZ: Commissioner Bradley.

20 COMMISSIONER BRADLEY: I'm prepared to second the
21 motion in that is the will of the body.

22 CHAIRMAN BAEZ: And let's try and fix the motion; or
23 maybe it's that I wasn't listening, and I apologize, but I'm
24 not sure that I heard one.

25 COMMISSIONER JABER: Ms. White, based on what I was

1 prepared to move, what do you think you are agreeing to?

2 MS. WHITE: I think I'm agreeing to a motion --
3 well, I'm not sure I'm agreeing to anything. But I believe
4 what you are moving -- let me make sure of that. Let me make
5 that clear first. I believe your motion was to defer --

6 COMMISSIONER BRADLEY: Not defer.

7 MS. WHITE: Not defer. But to state that the parties
8 agreement remains in place until December 19th -- 17th, 2003.

9 COMMISSIONER JABER: December 19th, 2004.

10 MS. WHITE: I'm sorry.

11 COMMISSIONER JABER: Let me articulate, you tell me
12 if you understand clearly. Which is to continue to provide
13 access to line sharing until the expiration of the contract,
14 recognizing that a true-up may be appropriate if the FCC
15 affirmatively removes the 271 obligation.

16 MS. WHITE: Yes, ma'am, that is what I understood.

17 COMMISSIONER JABER: That would be my motion, Mr.
18 Chairman.

19 COMMISSIONER BRADLEY: And I will second the motion.

20 CHAIRMAN BAEZ: There is a motion and a second. And
21 as stated, all those in favor say aye.

22 COMMISSIONER BRADLEY: Aye.

23 COMMISSIONER JABER: Aye.

24 CHAIRMAN BAEZ: Aye. Those opposed?

25 COMMISSIONER DEASON: Nay.

1 CHAIRMAN BAEZ: Thank you, Commissioners.

2 MR. WATKINS: Thank you, Mr. Chairman.

3 CHAIRMAN BAEZ: That disposes of Item 6. Thank you
4 all for the discussion, it was very helpful. We are going to
5 break for ten minutes.

6 MR. TEITZMAN: Mr. Chairman.

7 CHAIRMAN BAEZ: Yes, Mr. Teitzman.

8 MR. TEITZMAN: There was a second issue, should the
9 docket be closed.

10 COMMISSIONER JABER: What do you want? Do you want
11 it to close, or it can't now?

12 MR. TEITZMAN: There are other issues between the
13 parties, so I believe the docket should remain open.

14 CHAIRMAN BAEZ: Very well. So moved. Motion and
15 seconded. All those in favor say aye.

16 (Unanimous affirmative vote.)

17 CHAIRMAN BAEZ: Thank you.

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2 STATE OF FLORIDA)

3 : CERTIFICATE OF REPORTER

4 COUNTY OF LEON)

5

6 I, JANE FAUROT, RPR, Chief, Office of Hearing
7 Reporter Services, FPSC Division of Commission Clerk and
8 Administrative Services, do hereby certify that the foregoing
9 proceeding was heard at the time and place herein stated.

10 IT IS FURTHER CERTIFIED that I stenographically
11 reported the said proceedings; that the same has been
12 transcribed under my direct supervision; and that this
13 transcript constitutes a true transcription of my notes of said
14 proceedings.

15 I FURTHER CERTIFY that I am not a relative, employee,
16 attorney or counsel of any of the parties, nor am I a relative
17 or employee of any of the parties' attorney or counsel
18 connected with the action, nor am I financially interested in
19 the action.

20 DATED THIS 12th day of October, 2004.

21

22

23 _____
24 JANE FAUROT, RPR
25 Chief, Office of Hearing Reporter Services
FPSC Division of Commission Clerk and
Administrative Services
(850) 413-6732

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FLORIDA PUBLIC SERVICE COMMISSION

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6

VOTE SHEET

OCTOBER 5, 2004

RE: Docket No. 040601-TP - Petition by DIECA Communications, Inc. d/b/a Covad Communications Company for arbitration of issue resulting from interconnection negotiations with BellSouth Telecommunications, Inc., and request for expedited processing.

Issue 1: Is BellSouth obligated to provide Covad access to line sharing after October 2004?

Recommendation: No. BellSouth is not obligated to provide access to line sharing after October 2004. Staff believes line sharing does not meet the definition of a loop and therefore does not fall under the requirements of section 271(c)(2)(B)(iv) of the Telecommunications Act.

DENIED

* Motion to deny Staff on Issue 1 and allow the current agreement to remain in effect through December 19, 2004, recognizing that a "true-up" may be necessary if the FCC negates the 271 obligation.

Issue 2: Should this docket be closed?

Recommendation: No. This docket should remain open to address the remaining open issues.

APPROVED

⊗ Additionally, the Commissioners denied Covad's request for official recognition of Order PSC-02-1304-FDF-TL; granted BellSouth's request for official recognition of the FCC's Brief; and allowed oral argument COMMISSIONERS ASSIGNED: All Commissioners by the parties.

COMMISSIONERS' SIGNATURES

MAJORITY

[Signatures of Majority Commissioners]

DISSENTING

[Signature of J. Terry Deason]

REMARKS/DISSENTING COMMENTS:

* Commissioner Deason dissented on
Issue 1

BELLSOUTH APPENDIX

TAB 8

BEFORE THE GEORGIA PUBLIC SERVICE COMMISSION

ADMINISTRATIVE SESSION

Hearing Room 110
244 Washington Street
Atlanta, Georgia

Tuesday, September 21, 2004

The administrative session was called to order at
10:00 a.m., pursuant to Notice.

PRESENT WERE:

ROBERT B. BAKER, JR., Chairman
H. DOUG EVERETT, Vice Chairman
STAN WISE, Commissioner
ANGELA E. SPEIR, Commissioner
DAVID BURGESS, Commissioner

Brandenburg & Hasty
435 Cheek Road
Monroe, Georgia 30655

1 COMMISSIONER BURGESS: Aye.

2 CHAIRMAN EVERETT: Any opposed?

3 (No response.)

4 CHAIRMAN EVERETT: Passes unanimously.

5 Item R-2.

6 MR. KADUK: Item R-2 is Docket Number 19144-U,
7 it's petition of Covad for arbitration of Interconnection
8 Agreement Amendment with BellSouth pursuant to Section
9 252(b) of the Telecommunications Act of 1996. It's
10 consideration of BellSouth's obligation to provide line
11 sharing after October 2004.

12 In its Triennial Review Order, the FCC
13 grandfathered all existing line sharing arrangements and
14 established a three-year transition period for new line
15 sharing arrangements.

16 Staff therefore recommends that line sharing
17 arrangements continue to be ordered and billed at the rates
18 contained in the parties' interconnection agreements in the
19 interim.

20 Additionally, given the industry-wide relevance of
21 this issue, staff recommends that this issue be addressed in
22 the context of a generic docket, Docket Number 19341-U.

23 CHAIRMAN EVERETT: Any Commissioner have any
24 questions or any comments on this particular item, R-2?

25 COMMISSIONER BURGESS: Mr. Chairman, I just would

1 like to say that I believe at the Communications Committee
2 meeting on last week, that BellSouth indicated that absent
3 this Commission taking some action to order an amendment to
4 the existing agreement between them and Covad, that they
5 would continue to honor that agreement. And I think that
6 complies with what the staff is recommending here, so I'm
7 going to support the recommendation of the staff and that
8 we'll have a generic docket to settle the legal issue as to
9 whether or not there's a Section 271 requirement to provide
10 line sharing under.

11 CHAIRMAN EVERETT: Any other questions or
12 comments?

13 (No response.)

14 CHAIRMAN EVERETT: Hearing none, you've heard
15 staff's recommendation. All in favor, say aye.

16 COMMISSIONER WISE: Aye.

17 COMMISSIONER SPEIR: Aye.

18 CHAIRMAN EVERETT: Aye.

19 COMMISSIONER BAKER: Aye.

20 COMMISSIONER BURGESS: Aye.

21 CHAIRMAN EVERETT: Any opposed?

22 (No response.)

23 CHAIRMAN EVERETT: Passes unanimously.

24 Item R-3.

25 MR. WALSH: Item R-3 is Docket Number 18870-U,

1 Institutional Telecommunications Services. Consideration of
2 staff's motion to reopen the record to admit hearing request
3 responses into evidence.

4 The staff issued hearing requests at the July 20
5 hearing in this docket. Responses were provided by the
6 parties without objection. The information relates to the
7 cost of providing institutional telecommunications services
8 and the commissions paid to the institutions.

9 The staff recommends that the record be reopened
10 to admit the hearing responses.

11 CHAIRMAN EVERETT: Any Commissioner have any
12 questions or comments on item R-3?

13 (No response.)

14 CHAIRMAN EVERETT: Hearing none, all in favor of
15 staff's recommendation, say aye.

16 COMMISSIONER WISE: Aye.

17 COMMISSIONER SPEIR: Aye.

18 CHAIRMAN EVERETT: Aye.

19 COMMISSIONER BAKER: Aye.

20 COMMISSIONER BURGESS: Aye.

21 CHAIRMAN EVERETT: Any opposed?

22 (No response.)

23 CHAIRMAN EVERETT: Passes unanimously.

24 Item R-4.

25 MR. REINHARDT: Item R-4 is Docket Number 18948-U,

BELLSOUTH APPENDIX

TAB 9

00001

1 BEFORE THE TENNESSEE REGULATORY AUTHORITY

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7 EXCERPT OF DIRECTORS' CONFERENCE

8 Monday, September 27, 2004

9 IN RE: DOCKET NO. 04-00186

10 -----

11 APPEARANCES:

12 For BellSouth: Mr. Guy Hicks

13
14 For Covad: Mr. Henry M. Walker
 Mr. Gene Watkins

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25 Reported By:
 Teri A. Campbell, RPR, CCR

1 (The aforementioned cause came on to
2 be heard on Monday, September 27, 2004, beginning at
3 approximately 1:00 p.m., before Chairman Pat Miller,
4 Director Deborah Taylor Tate, and Director Sara Kyle.
5 The following is an excerpt of the proceedings that
6 were had, to-wit:)

7
8 MS. DILLON: Section 2, Directors
9 Miller, Kyle, and Tate. Docket No. 04-00186, DIECA
10 Communications, Inc. Petition of DIECA Communications,
11 Inc., d/b/a Covad Communications Company, for
12 arbitration of interconnection agreement amendment with
13 BellSouth. Consider line sharing issue.

14 CHAIRMAN MILLER: At the request of
15 the parties on August 30, 2004, this panel unanimously
16 voted to direct the hearing officer to set
17 September 3rd as a briefing date on the question of
18 whether BellSouth was obligated to provide Covad access
19 to line sharing after October 2004.

20 Are there any comments by my fellow
21 directors? I have prepared a motion.

22 DIRECTOR TATE: If we could, could we
23 take just about two minutes? I have a question that I
24 need to discuss.

25 CHAIRMAN MILLER: Certainly.

00003

1 (Pause.)

2 CHAIRMAN MILLER: Are there any
3 comments from my fellow directors?

4 DIRECTOR KYLE: Can the parties come
5 up just in case there's questions? Are we still on
6 00186?

7 CHAIRMAN MILLER: Yes, ma'am. As a
8 preliminary matter, there is Mr. Charles Watkins who
9 has applied for appearance pro hac vice. I want to go
10 ahead and grant that motion in order that if there are
11 any questions of the panel that he be allowed to
12 participate.

13 DIRECTOR KYLE: Do you want to go
14 through your motion first, Chairman?

15 CHAIRMAN MILLER: I'm going to try a
16 short motion first. Based upon the FCC's finding in
17 the Triennial Review Order pursuant to 47 USC
18 251(c)(3), I move we find BellSouth is required to
19 provide line sharing to Covad after October 2004.

20 DIRECTOR KYLE: Let me take a stab at
21 this for discussion just a minute since we have counsel
22 here. I want to be corrected. There may be a lot of
23 that. So feel free.

24 Now, as I understand it --

25 CHAIRMAN MILLER: If we could,

00004

1 Director Kyle, have the parties identify themselves for
2 the record.

3 DIRECTOR KYLE: Thank you.

4 MR. WALKER: Henry Walker here on
5 behalf of Covad. I would like to introduce Mr. Gene
6 Watkins.

7 MR. WATKINS: Good afternoon, Chairman
8 and Directors.

9 MR. HICKS: Guy Hicks on behalf of
10 BellSouth Telecommunications.

11 DIRECTOR KYLE: I'm not as articulate
12 as you attorneys, but let me try this. Let me see if I
13 understand the Triennial Review Order. The FCC says as
14 to line sharing we're in a three-year transition
15 period. I understand it to mean this: That existing
16 customers are grandfathered in. Then year one, which
17 was from October 2003 to October 2004, new customers
18 come in.

19 Now, that's different from existing
20 customers. New customers come in. They're to pay
21 25 percent of the reoccurring rate. Now, year two and
22 year three, the rate goes up for those new customers.
23 Then at the end of year three, CLECs basically go and
24 get their own loop. Then looking back at the existing
25 customers, I think you have to wait on the biannual

1 review.

2 So we had one year from October 2003
3 to October 2004 where new customers could be gained.
4 Am I right, Mr. Watkins? I see you ready to correct
5 me. I stand ready to be corrected.

6 MR. WATKINS: Generally, Director
7 Kyle, you're correct. What the FCC did was they looked
8 at line sharing under 251(c)(3) and said are CLECs
9 impaired with it or without it. They ruled that they
10 were not impaired without access and set up a
11 transitional period for moving from line sharing to a
12 standalone loop. That's what you see these percentages
13 of. The percentages that our existing customers would
14 be paying would be stepped up until we reach the
15 standalone loop rate. That's for customers picked up
16 in the last year.

17 New orders would be cut off as of
18 October 2004, coming up in about a week.

19 DIRECTOR KYLE: I'm with you.

20 MR. WATKINS: That entire transitional
21 mechanism was designed to address those CLECs who are
22 obtaining line sharing from ILECs. In fact, the rule
23 repeatedly identifies the character that is being
24 addressed here is 251(c)(3) and ILECs. That's on one
25 side.

1 Now, the Act independently -- and the
2 FCC also said this in the Triennial Review Order --
3 independently imposes access requirements under 271 for
4 regional Bell operating companies.

5 DIRECTOR KYLE: All right. Let's
6 don't talk about 271 because that's not why we're here
7 today. All we did was give our recommendation of 271
8 to the FCC. As we know, we did a voluminous amount of
9 work. It went up to the FCC. They take jurisdiction.

10 I'm not here on 271 today. I'm here
11 only on 251. So, in order not to complicate this
12 argument, let's just stay back with 251(c)(3). Okay?

13 MR. HICKS: Director Kyle, I think
14 that is correct what you just said, your description of
15 the transition plan. I would like to note that the FCC
16 in its briefs to the Court of Appeals in Washington,
17 D.C. in connection with USTA II, the big case we've all
18 been following, I think made very clear what it did
19 with line sharing. If I might just read a couple of
20 brief excerpts. Again, these are the lawyers for the
21 federal government arguing to the Court of Appeals in
22 Washington, D.C.

23 They said the commission phased out
24 line sharing, which is consistent with your description
25 of the transition plan. In reaching its decision, the

1 FCC considered all the revenue that a new entrant could
2 expect to receive from the use of a whole loop. That's
3 consistent with your point about after October they can
4 buy a loop. This is not a question of Covad not being
5 able to do line sharing. It's a question of whether
6 they buy the loop and get all the revenues of the loop
7 and the cost of the loop or whether they can just buy
8 the line sharing portion for new customers.

9 So the lawyers for the federal
10 government told the court, they said, the commission
11 just phased out line sharing. It considered the
12 development of line splitting. It considered
13 intermodal competition, which is critical. That's why
14 the court in the first place reversed the FCC's initial
15 line sharing rules because they said the FCC ignored
16 intermodal competition like wireless and cable modem.

17 The lawyers go on to say -- and the
18 others -- using the high frequency portion and the
19 relevance of other broadband platforms such as cable
20 modem to the cost and benefits of mandatory line
21 sharing.

22 Also in that same brief, the FCC
23 lawyers say the commission also removed all existing
24 unbundling obligations with respect to packet
25 switching; and subject to the grandfather provisions

1 and the transition plan, the one you just described,
2 eliminated ILEC line sharing duties. I think if the
3 FCC, as Covad claims, had meant to give with the left
4 hand but take away with the right hand -- that is, take
5 away line sharing out of 251 but keep it under 271 -- I
6 really believe the FCC lawyers would have told the
7 court that. Instead they said what we've done, judge,
8 is eliminated line sharing duties.

9 I think duties is broader than the
10 question of unbundling. They could have said we've
11 eliminated 251 unbundling; we've eliminated TELRIC.
12 No. They said we've eliminated line sharing duties.
13 This rule -- this transition plan that you described is
14 now a federal rule. It's been upheld by the USTA II
15 court, by the D.C. Circuit Court of Appeals. It's the
16 law of the land. It is the right rule.

17 I think if the FCC had intended to
18 eliminate line sharing for some companies but not for
19 BellSouth and regional Bell operating companies, it
20 would have said so explicitly and could have done that.

21 MR. WATKINS: Director Kyle, I've got
22 to mention this. BellSouth does not challenge and
23 their briefing did not challenge the fact that the
24 FCC -- this is a quotation from the brief filed in this
25 matter before the Authority. (Reading) The FCC has

1 concluded that Section 271 requires RBOCs -- like
2 BellSouth -- to continue to require unbundling of the
3 specifically identified elements even if they do not
4 meet the impairment test under Section 251.

5 The impairment test is what the FCC
6 was analyzing in advance of the transition mechanism
7 that you've been talking about. Covad has not and does
8 not now take issue with that impairment analysis or the
9 determination made under it.

10 The issue today is, does BellSouth
11 have an independent obligation of that 251 analysis
12 that BellSouth themselves recognize exists. The issue
13 is does it exist for line sharing. They also don't
14 take issue with the fact that if line sharing is in
15 checklist item 2, which is a part of 271, they have the
16 obligation. They don't dispute that. What they
17 dispute is that line sharing is a checklist item 4
18 element.

19 DIRECTOR KYLE: Mr. Watkins, we've got
20 so many 271 petitions in front of the FCC. We did our
21 part on 271. It is now on to our father court here to
22 make all those determinations. And with all the
23 petitions going on up there right now, I feel like
24 you're trying to make -- persuade me to make a decision
25 under 271. I've got to make this under 251(c)(3) and

1 follow what the FCC has left us with. It was what I
2 described. Any new customers can come in for that
3 year, October 2003 to October 2004.

4 Now, the terms and conditions are --
5 in the second year, you pay a higher percentage, third
6 year higher percentage. Then the transition ends.
7 Then you get out there and compete, work together and
8 negotiate all of those things you seem to do better
9 sometimes than coming in to court. We can't focus on
10 271 in here, but you're saying we can.

11 MR. WATKINS: Well, the parties
12 themselves have procedurally agreed to ask the
13 Authority this very question.

14 CHAIRMAN MILLER: Well, I think you
15 recharacterized the question. I think the question
16 before us is, is BellSouth obligated to provide Covad
17 line sharing after October 2004. And I renew my motion
18 that says, based on the FCC findings in the Triennial
19 Review Order, pursuant to 47 USC 251(c)(3), I move we
20 find BellSouth is required to provide line sharing to
21 Covad after October 2004. That's as far as I'm willing
22 to go. I think to go further would be speculative.

23 DIRECTOR KYLE: Do you have a comment,
24 Mr. Hicks, for Bell?

25 MR. HICKS: Yes, I do. Thank you,

1 Director Kyle. I think that another telling fact here
2 is that the original -- the first 271 cases that were
3 approved, New York and Texas, were approved by the FCC
4 based on the RBOCs' agreement to provide loops. There
5 was no line sharing at that time at all. So if, as
6 Covad argues, line sharing is part of the 271
7 checklist, which we don't think you need to decide
8 today, it wouldn't make sense for Texas and New York to
9 have gotten 271 relief and the FCC to have said you met
10 checklist item 4, because there was no line sharing
11 requirement at that point.

12 Line sharing is separate. It was a
13 provisioning. It's a practice of sharing the loop.
14 The FCC looked hard and long at this. You know, the
15 FCC originally in 1999 required line sharing as a UNE.
16 Then the D.C. Court of Appeals said, no, you can't do
17 that. You ignored intermodal competition. You've got
18 to go back to the drawing board and look at this again.

19 The FCC came back and said the court
20 is right; we're going to adopt the transition plan. We
21 recognize that Covad and others have customers. So
22 we're going to adopt this transition plan, but line
23 sharing for new customers is going to end October 2004.
24 That was upheld by the court. The plan has been upheld
25 by the court and there is no need really for you to

1 look beyond that. I think there are petitions dealing
2 with this at the federal level that we'll all have to
3 wait on.

4 And one additional point, I think, to
5 bring some clarity to this is that I know you-all had
6 mentioned a few agenda conferences ago that there was
7 some reporting in the trade press that Chairman Powell
8 talked about reinstating line sharing. But the trade
9 press proved to be wrong because when the interim rules
10 came out recently, there was nothing about line
11 sharing. Nothing changed the transition plan, the one
12 that's been upheld by the courts.

13 I think it's telling that if there was
14 discussion in Washington about reinstating line
15 sharing, you wouldn't have to reinstate it if it was
16 still here. Do you see what I'm saying? There
17 wouldn't be discussion about reinstating line sharing
18 and whether that's a good idea if, as Covad is telling
19 you, it is still here under Section 271.

20 DIRECTOR KYLE: I want to make sure
21 that Chairman Miller and I are saying the same thing.
22 Bell, you will continue to offer this line sharing
23 under Section 251(c(3) in accordance with that
24 transition period as outlined by the Federal
25 Communications Commission?

1 MR. HICKS: We'll do everything that's
2 outlined in the transition plan.

3 DIRECTOR KYLE: And that's what I have
4 just stated that I gave you-all an opportunity to
5 correct.

6 MR. HICKS: Yes. That's really all
7 we're asking for is that the transition plan be put in
8 the interconnection agreement. Nothing more. Nothing
9 less.

10 DIRECTOR KYLE: Chairman Miller, am I
11 saying the same thing you are, that we're asking Bell
12 to continue offering line sharing in accordance with
13 the transition period as outlined by the FCC? I think
14 we're on the same track.

15 CHAIRMAN MILLER: Yes.

16 DIRECTOR TATE: I have a question for
17 Mr. Watkins, if I could. I'm certainly not asking for
18 any confidential information, but have you-all
19 negotiated some agreements with some other ILECs around
20 the country that may be different from this transition
21 plan?

22 MR. WATKINS: Director Tate, we have
23 entered into agreements with every regional Bell
24 operating company to preserve line sharing except
25 BellSouth.

1 DIRECTOR TATE: Well, I'm just once
2 again wishing, hoping, and reiterating that
3 negotiations and commercial agreements do a much better
4 job probably for all of you than we do up here. I
5 would agree with the Chairman's motion with that said.

6 DIRECTOR KYLE: I do too.

7 CHAIRMAN MILLER: Madam Clerk.

8

9 (Conclusion of Excerpt.)

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1 REPORTER'S CERTIFICATE

2 STATE OF TENNESSEE)

3 COUNTY OF DAVIDSON)

4 I, Teri A. Campbell, Registered
5 Professional Reporter, Certified Court Reporter, and
6 Notary Public for the State of Tennessee at Large,
7 hereby certify that I reported the foregoing
8 proceedings at the time and place set forth in the
9 caption thereof; that the proceedings were
10 stenographically reported by me; and that the foregoing
11 proceedings constitute a true and correct transcript of
12 said proceedings to the best of my ability.

13 I FURTHER CERTIFY that I am not related to
14 any of the parties named herein, nor their counsel, and
15 have no interest, financial or otherwise, in the
16 outcome or events of this action.

17 IN WITNESS WHEREOF, I have hereunto
18 affixed my official signature and seal of office this
19 28th day of September, 2004.

20

21 _____
22 TERI A. CAMPBELL,
23 REGISTERED PROFESSIONAL
24 REPORTER, CERTIFIED COURT
25 REPORTER, AND NOTARY PUBLIC
FOR THE STATE OF TENNESSEE AT
LARGE

My Commission Expires:
July 19, 2008

BELLSOUTH APPENDIX

TAB 10



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MCI chooses Ericsson for Voice-over-IP

September 28, 2004

US-based communications company MCI has decided to migrate its international voice traffic from traditional circuit-switched technology to packet-switched Voice-over-IP.

"MCI has reached another milestone in our global convergence strategy," said Fred Briggs, president of MCI Operations and Technology. "Ericsson's Engine platform will enable MCI to flexibly and cost-effectively converge international voice services onto our IP backbone to optimize our network, increase efficiency and further realize operational savings while providing value to customers."

Under the multi-million dollar contract Ericsson will deliver its Engine Integral 3.1 solution, which includes telephony server and media gateway equipment, and an operation and support system. The agreement spans several years and deliveries have already started, with MCI's Engine platform expected to start carrying traffic in the first half of 2005.

Johan Westerberg, vice president national accounts at Ericsson US, is heading the account team responsible for MCI.

"One of the main benefits Engine brings to MCI is that it can combine circuit-switched and packet-switched technologies. It is definitely a breakthrough for Ericsson in the US, regarding both Engine and Voice-over-IP," Westerberg said.

Ericsson has a long relationship with MCI and knows what it takes to support carrier-class network traffic. According to MCI, the company chose Ericsson because it offered the best technical solution at a very competitive price.

MCI is the global number one in terms of international telephony traffic, and operates one of the largest IP data networks in the world. This leading status means that many big operators are looking closely at MCI's decisive step into Voice-over-IP.

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Last published September 30, 2004

BELLSOUTH APPENDIX

TAB 11



About MCI



Our Company

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Our Company

Today, MCI's focus is clear - to use our global network and expertise to deliver innovative products that provide simplicity and unsurpassed value to our customers. With millions of business and residential customers, MCI® is a leader in serving global businesses, government offices, and U.S. residential customers.

MCI delivers a comprehensive portfolio of local-to-global business data, Internet and voice services to a 'Who's Who' list of the Fortune 1000. MCI is an established leader in IP network technology and Virtual Private Networking (VPN), delivering VPNs based on private data networks as well as our global Internet backbone, which spans six continents. Our portfolio includes SONET private line, frame relay, ATM and a full range of dedicated, dial and value-added Internet services.

MCI today owns and operates some of the world's most complex and sophisticated custom networks, delivering value for a wide variety of customers and more than 75 U.S. federal government agencies. We also are a premier provider of audio, video, and Net conferencing services that enable customers to meet and collaborate remotely to effectively conduct business anywhere, anytime.

MCI is the United States' second largest long distance company for residential customers. In April 2002, MCI launched The Neighborhood built by MCI, the industry's first truly any-distance, all-inclusive offering combining local and nationwide long distance calling from home to consumers for one low monthly price. The Neighborhood continues MCI's pioneering tradition, which has been based on opening up monopoly markets and providing innovative services to consumers nationwide.

The Strength and Innovation of MCI

- The industry's farthest-reaching global Internet backbone*, spanning six continents, over 140 countries, over 2,800 cities and over 4,500 Points of Presence (PoPs)
- The most rigorously engineered IP backbone network, with more than 3.2 million dial modems
- Over 98,000 owned and operated global network route miles, including terrestrial and undersea cable
- The most robust set of converged communications services in the industry, including integrated voice, data, and Internet services
- An expansive global customer base including leading companies among the Fortune 1000
- A world-class service and technology-oriented workforce including highly-skilled employees deployed around the world

* Based on number of company-owned global PoPs.

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About MCI

Our Network

MCI's extensive global network is a key advantage for business customers of all sizes.

MCI® owns, operates, monitors and maintains one of the largest communications networks in the world. Our network facilities are throughout North America, Latin America, Europe, Africa, and the Asia-Pacific region, in more than 140 countries and over 2,800 cities.

Our 98,000-mile fiber optic network is designed to support the largest array of data communications and voice products in the world.

MCI owns the world's farthest reaching global network (based on company-owned POPs), and spans more than 4,500 Points of Presence (POPs) throughout the world, with 2.2 million global dial modems and high-capacity connections to more than 102,000 active buildings. The global IP network can circle the globe more than four times. Additionally, MCI remains the most connected Internet backbone provider with the greatest number of Autonomous System network connections. The company's expansive IP footprint, coupled with its direct interconnections, exceeds all other competitor networks and enables its business customers and ISPs to reach more destinations directly through MCI's global IP backbone than any other carrier.

MCI offers the fastest speeds available over IP today. We were the first to route and switch OC-192 IP network traffic. MCI also has the most scalable IP network available, offering speeds from dial to OC-48.

MCI's IP data solutions are directly built into a wholly-owned global network, for direct, safe, secure access.

Skilled technicians in Network Operations Centers around the world monitor the network for optimal efficiency 24 hours a day, 365 days a year.

Our Company

Our Network

Global Presence

IP Dial-up PoP Numbers

IP Latency Statistics

DSL (On-Net) Latency Statistics

Remote Broadband Access (RBA) Hotspots

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MCI Ranked #1 As Most Connected Internet Network Provider For Fourth Consecutive Year

Independent TeleGeography Research Confirms MCI's Role as the Internet's Most Central Player

ASHBURN, VA. - OCTOBER 13, 2004--MCI (NASDAQ: MCIP) today announced that its global IP network has been recognized for the fourth consecutive year as the world's most connected Internet backbone network. TeleGeography, a research division of PriMetrica, Inc., in its annual 2005 Global Internet Geography Database and Report, found that MCI's global network continues to serve the Internet with the greatest number of Autonomous System (AS) network connections of any IP network by more than 50 percent, playing a critical role in the movement of Internet traffic. MCI's expansive IP footprint, coupled with its direct interconnections, enables its customers to reach more destinations directly through its global IP network than any other carrier.

"Our number one ranking illustrates MCI's role in delivering critical Internet services for our customers and the entire Internet community," said Vint Cerf, MCI senior vice president of Technology Strategy. "MCI delivers a comprehensive range of public and private IP services to businesses and government agencies and this distinction reinforces MCI's ability to carry digital information quickly and reliably around the globe."

Alan Mauldin, senior research analyst for TeleGeography added, "The Autonomous System ranking is a measure of the connectedness of an IP network to the rest of the public Internet. While all networks can reach each other on the Internet, the AS ranking demonstrates the closeness of a network to the rest of the Internet, as in number of hops data must take to reach its destination. Since TeleGeography began tracking AS-connectivity in 2001, not only has MCI ranked first each year, but consistently has held a wide margin over the nearest service provider."

In late-July, MCI announced that it had raised the bar on Internet Service by increasing its performance threshold. The company introduced new guarantees for traffic between key global business centers and set new standards for Internet service around the world. These Service Level Agreements reinforce MCI's ongoing commitment to delivering high performance IP-based services and provide additional confidence for businesses evolving their communications to an increasingly IP environment.

MCI, the company that pioneered the commercial Internet in 1987 as UUNET, has an IP network that spans six continents and supports more than two million global dial modems. MCI's Internet backbone provides more than 4,500 IP PoPs throughout North America, Latin America, UK-Europe, Africa and the Asia-Pacific region.

MCI also played an integral role building a trans-Pacific submarine cable named Southern Cross that opened up direct Internet traffic routes from California to Hawaii, Australia, New Zealand and Fiji in 2000. The company continues to be at the forefront developing and implementing leading-edge networking technologies that move the Internet forward. Just this year, MCI was the first data communications company to deploy an Ultra Long Haul Network; first to field test 40G over both a short haul and long haul network; first to announce a Converged Packet Access Strategy; and first to deploy the industry's latest state-of-the-art fiber, Medium Dispersion Fiber. MCI is also transitioning all its voice and data networks to an all IP core.

For more information regarding TeleGeography and its 2005 Global Internet Geography Database and Report visit: <http://www.primetrica.com>.

About TeleGeography

TeleGeography is a research unit of PriMetrica, a supplier of data-driven research and consulting services to thousands of clients in over 100 countries. For more information, go to <http://www.telegeography.com>.

About MCI

MCI, Inc. (NASDAQ: MCIP) is a leading global communications provider, delivering innovative, cost-effective, advanced communications connectivity to businesses, governments and consumers. With the industry's most expansive global IP backbone, based on the number of company-owned points of presence, and wholly-owned data networks, MCI develops the converged communications products and services that are the foundation for commerce and communications in today's market. For more information, go to www.mci.com.

- 13 October, 2004

PR Contact:

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Role: MCI Public Relations

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Fax: 614.723.1643

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MCI Taps Ericsson to Take Convergence Networking Strategy To The Next Level

Ericsson's Engine Platform to Accelerate MCI's Migration of International Voice Traffic to an all IP Backbone

ASHBURN, VA; STOCKHOLM, SWEDEN - AUGUST 18, 2004 - MCI, Inc. (NASDAQ: MCIP) and Ericsson (NASDAQ:ERICY) today announced an agreement to deploy Ericsson's Engine solution to migrate MCI's US-based international gateway traffic from traditional circuit switching to carrier-class Voice over IP (VoIP). Launching Ericsson's Engine solution in the U.S. is a key step in MCI's convergence networking strategy. This essential carrier-class, standards-based, VoIP infrastructure will enable the company to transport voice traffic worldwide on its IP backbone as well as expand its network functionality and offer next generation services on a global basis.

"MCI has reached another milestone in our global convergence strategy," said Fred Briggs, president of MCI Operations and Technology. "Ericsson's Engine platform will enable MCI to flexibly and cost-effectively converge international voice services onto our IP backbone to optimize our network, increase efficiency and further realize operational savings while providing more value to customers."

MCI carrier customers and partners will continue to be able to receive today's full range of existing telephony services as well as enable them to migrate to next-generation IP services as their businesses demand. The deployment will also provide scalable IP access, for customers and partners to MCI's large global voice network and deliver enhanced VoIP features in the future.

"As a long-time vendor to MCI, Ericsson is excited to play a key role in supporting MCI's continued evolution to an all-IP network," said Angel Ruiz, president and chief executive officer of Ericsson North America. "Our flexible Engine solution is aligned to fit seamlessly into MCI's network, protecting voice revenues and enabling new revenue streams while substantially reducing operational costs."

Building on its domestic VoIP migration plans, announced in June 2003, MCI has become one of the first U.S.-based service providers to provision the transition of its international voice service to its core IP backbone. Already well into the deployment of Ericsson's latest generation voice switching platform into the network, MCI expects to begin transitioning traffic by mid 2005.

MCI's Engine deployment includes the Ericsson Telephony Server (TeS) which serves as the voice gateway controller and signaling gateway, and the Ericsson Media Gateway (MGW) as the VoIP media path converters. Engine will allow MCI to transfer the function of fixed international switch voice circuits to the dynamic efficiencies of the MCI IP global network. The Media Gateways (MGW) will packetize voice streams that come from the legacy TDM network for transport across the IP backbone. Likewise, MGWs will also convert VoIP packets back to TDM voice streams for transport across the Public Switched Telephone Network (PSTN). Also, by providing MCI with the capability to interconnect existing VoIP networks with SIP and H.323, Engine will also provide MCI the flexibility to connect with global carriers to exchange VoIP traffic regardless of protocol preference.

About MCI

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About Ericsson

Ericsson is shaping the future of Mobile and Broadband Internet communications through its continuous technology leadership. Providing innovative solutions in more than 140 countries, Ericsson is helping to create the most powerful communication companies in the world. Read more at <http://www.ericsson>.

[com](#)**About Ericsson Engine**

Ericsson Engine Softswitch is a commercially proven system that protects and extends operator revenues and margins. Engine provides a low-risk evolution of existing circuit-switched networks to an IP multi-service platform. It offers operators the opportunity to utilize network resources for next-generation services in the most cost efficient way, while continuing to profit from telephony services. Engine has been selected by more than 33 operators worldwide and 25 networks are in commercial service.

- 18 August, 2004

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MCI VoIP Solution Leads Industry in Meeting 9-1-1 Requirements

-- MCI Advantage Delivers Caller Phone Number and Location to Correct 9-1-1 Agency For More Than Two Years --

-- Company Working with National Emergency Number Association to Develop Life-Saving 9-1-1 Services for Mobile VoIP Users --

ASHBURN, Va., August 3, 2004 -- MCI (NASDAQ: MCIP) today announced that MCI Advantage is one of the industry's first Voice over Internet Protocol (VoIP) solutions to support 9-1-1 capabilities at fixed locations. In addition, the company has teamed with the National Emergency Number Association (NENA) and regional emergency communication organizations to develop and implement long-term solutions for 9-1-1 services to support mobile users.

"We are able to offer MCI Advantage customers, who order service for fixed locations, the same benefits they would expect from their traditional phone service," said Nancy Gofus, MCI senior vice president of Product Management. "As a pioneer, developing and delivering VoIP services to market, MCI proactively invested in the equipment and resources to support true 9-1-1 service to protect our customer's safety."

While most VoIP services offer a "9-1-1 like" solution, MCI has provided "true 9 1 1," or E9 1 1, capabilities by utilizing the existing 9-1-1 network to route calls to the appropriate Public Safety Answering Point (PSAP) since 2001. This allows the VoIP caller's location and phone number to be automatically displayed in front of the 9-1-1 call taker so emergency assistance can be dispatched to a location even if the caller cannot communicate. In addition, it ensures that 9-1-1 calls are routed to the local emergency response teams for the area where the call was placed.

"It is our goal to have all the 9-1-1 calls utilize the E9 1 1 systems," said Roger Hixson, National Emergency Number Association (NENA) Technical Issues Director. "If the public is able to make a telephone call from a broadband VoIP 'telephone service,' they should be able to reach 9-1-1 services in an emergency. MCI's deployment of its VoIP service is proof that true 9-1-1 services, including location identification, can be provided today for customers at fixed locations."

The "9-1-1 like service" provided by others in the VoIP industry compromises a customer's ability to access emergency services via 9-1-1 because calls route to an agency's 10-digit telephone number that may not be answered at the same priority as a 9-1-1 call. In addition, the caller's telephone number and location may not be displayed and if a caller is unable to respond or does not know their current location information, emergency response could be delayed or worse, fail to respond.

"Having important information, such as caller's location, display automatically is invaluable when it comes to responding to an emergency situation where every second counts," said Richard Atkins, Assistant Director, Tarrant County 9-1-1 District in Fort Worth, Texas. "There is nothing more distressing than knowing someone is in need of assistance and not being able to locate them because their information is not made available to emergency operators."

MCI fully supports an administrative approach to maintain funding of 9-1-1 resources at a level equivalent to those generated by current or evolving funding processes. MCI is remitting 9-1-1 service fees in accordance with local 9-1-1 requirements. Available since 2001, MCI Advantage utilizes MCI's voice, DSL and IP footprint and expertise with the industry's leading technologies, to offer customers the first nationwide, business-grade, converged VoIP solution. MCI Advantage changes the way customers do business, by driving increased employee productivity, simplifying the way telecommunications products and services are bought and managed, scaling easily as a company grows and positioning customers for future services.

About MCI

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effective, advanced communications connectivity to businesses, governments and consumers. With the industry's most expansive global IP backbone, based on the number of company-owned points of presence, and wholly-owned data networks, MCI develops the converged communications products and services that are the foundation for commerce and communications in today's market. For more information, go to www.mci.com.

- 3 August, 2004

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MCI Raises Bar On Internet Service Performance

Debuts Industry's First Guarantees for Service to Global Business Centers; Implements Standard Performance Metrics for Regions Around the World

ASHBURN, Va., July 28, 2004 - MCI (NASDAQ: MCIP) today announced it has raised the bar on Internet service by increasing its performance threshold, introducing new guarantees for traffic between key global business centers, and setting new standards for Internet service around the world. These new SLAs reinforce MCI's ongoing commitment to delivering high performance IP-based services and provide additional confidence for businesses evolving their communications to an increasingly IP environment.

"With one of the most expansive and meticulously engineered IP networks in the world, MCI is once again setting higher standards for industry performance," said Nancy Gofus, MCI senior vice president, Product Management. "MCI's new Service Level Agreements continue to lead the industry, while further demonstrating our commitment to overall customer service and satisfaction."

Effective immediately, all MCI Internet service customers worldwide are automatically covered by MCI's new enhanced Service Level Agreements (SLAs), which include more stringent network performance guarantees for **latency** (the speed at which traffic traverses MCI's global backbone) and additional **packet delivery guarantees** (ensures that traffic is being delivered over the network to its destination) for Latin America, Asia Pacific and EMEA. MCI is also introducing a **jitter** guarantee of one millisecond for U.S. traffic that will enable customers to better carry time-sensitive applications like VoIP over their networks. The new metrics are being applied across all MCI Internet Protocol (IP) services, including dedicated and remote Internet access, IP VPN Dedicated and Remote, and Internet Colocation services, at no additional cost to customers.

MCI will also enhance its Remote Access Services this fall with the addition of new end-to-end SLAs for all MCI Internet Dial Corporate customers to ensure a positive experience for each and every end-user. Utilizing MCI's Dial Analysis monitoring and reporting platform, customers will be able to measure end-user performance against the new end-to-end SLAs.

MCI's SLAs now feature:

- Reduced latency within all regions of the world. For example, the North American performance guarantees for average round-trip transmission is now 45 milliseconds or less between hub routers in North America, representing nearly 20 percent faster transmission;
- Reduced latency between regions, such as from EMEA to Asia Pac;
- New latency guarantees intra-regionally for Latin America and Asia Pacific, including guaranteed traffic delivery from one global business center to another, such as from Buenos Aires to Miami or from Hong Kong to Singapore;
- New latency guarantees intra-regionally for EMEA, including guaranteed traffic delivery from Europe to South Africa;
- New packet delivery metrics in all regions of the world to ensure traffic reaches its destination safely; and
- Global dial metrics down to the end-user level that measure call success rate, no busy signal, ring no answer and average initial connect speed SLAs.

MCI Internet customers can monitor the enhanced metrics through MCI's online customer service portal. In addition, MCI posts the performance for its backbone on a monthly basis on its public Web site at <http://global.mci.com/about/network/latency/>.

MCI backs its SLAs with proactive notification and service credits. For complete details on MCI's global SLAs, please visit <http://global.mci.com/terms/us/products/internet/sla/>.

About MCI

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- 28 July, 2004

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MCI Unveils Converged Packet Access Strategy

Next-Generation Access Infrastructure Provides a Highly Scalable, Secure and Cost-Effective Improvement Over Traditional Access Networks

ASHBURN, Va., July 20, 2004 - MCI (NASDAQ:MCIP) today unveiled the industry's first Converged Packet Access (CPA) strategy which will serve as the company's next generation access network infrastructure. Once implemented, CPA will give customers a practical and cost-effective means of migrating their access infrastructure from the rigid Time Division Multiplexing (TDM) hierarchy used today to a flexible infrastructure based on packet technology. MCI has developed a standards-based carrier-class architecture that leverages the best attributes of Ethernet and Multiprotocol Label Switching (MPLS) technology, and is capable of delivering both legacy and next-generation packet services via a common, converged access connection from the customer premise.

"Customer access is the final frontier in creating a network that is truly converged from end-to-end," said Fred Briggs, president of MCI Operations and Technology. "As more customers move to packet services for their communications needs, Converged Packet Access will provide the speed, scalability and efficiencies that large enterprises and small businesses will need to quickly adapt to changing business requirements. CPA will bring the power and reach of the MCI global IP network directly to our customers' front doors."

Historically, individual communication services have been provisioned on separate physical TDM facilities (e.g., a voice circuit for phone calls and separate circuit for data traffic). By combining all services on a single access facility, CPA will simplify the customer premise equipment required to run even the most complex networking services and reduce associated access costs to MCI.

CPA architecture consolidates all services - Frame Relay, Private IP, IP VPN, Ethernet, Private Line, and voice - onto a single packet access connection to the customer via a simple, low-cost Ethernet interface (10bT, 100bT and Gig E). The initial services supported by CPA will include U.S. Private Line Ethernet Services, enhanced Metro Private Line Ethernet Service and expanded coverage of MCI's Internet Dedicated Ethernet Service.

"MCI's Converged Packet Access strategy is a bold, innovative approach to improving both its customers' experience and its operating efficiency," said Brian Van Steen, senior analyst of RHK, a leading communications market analysis and consulting firm. "CPA is an important step forward for MCI in addressing the access needs of its customers as they increasingly adopt packet-based services."

CPA is compatible with any means of physical access and will securely accommodate an on-net access connection provided directly by MCI or a third party leased line. Once an initial physical connection is established, MCI customers can logically provision capacity and services as needed without requiring physical changes to the network. CPA will eliminate the need for customers to buy separate access lines for each service they use, and will allow customers to upgrade their bandwidth allocation within hours rather than in weeks with today's traditional TDM installation. Also, in order to ensure the security and quality of service of customer traffic, MPLS tunneling technology is utilized to create logical channels that securely separate customer's services. In the future, customers will be able to manage their networks via an intelligent Web-based portal that provides full control over their networking needs.

"An added benefit of CPA is its ability to allow MCI customers to leverage their existing network equipment to maximize the value and extend the life of their IT investments," said Briggs. "At the same time, CPA will enable MCI to improve performance and increase its operating efficiency by streamlining the provisioning process and to reduce MCI's cost of service by converging its customers' communications services from multiple access circuits to a single high-capacity line."

MCI and its vendors have constructed the building blocks of the CPA architecture, which includes four key components: (1) an Ethernet traffic aggregator; (2) a new Layer 2 and TDM grooming infrastructure; (3) an optical add-drop multiplexer; and (4) a packet-enabled service edge. This equipment allows MCI to aggregate traffic originating from one large business customer or many small business customers in a

multi-tenant business building across a single, secure network access circuit.

"By building customer access connections using packet technology, MCI is better positioned to support the various mix of services our customers use today, while enabling them to seamlessly adopt the IP services of tomorrow," said Briggs. "We consciously designed the CPA infrastructure to be service agnostic, to ensure that it will support the full range of IP- and packet-based services that MCI offers today, as well as the new services MCI introduces in the future."

About MCI

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- 20 July, 2004

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MCI Launches Next-Generation Ethernet Capabilities Nationwide

New Services, Expanded Footprint Meet Growing Enterprise Demand for High-Performance, High Availability Networks

ASHBURN, Va., July 20, 2004 - MCI (NASDAQ:MCIP) today introduced its next-generation Ethernet capabilities, offering businesses an economical and flexible way to extend their local area networks to become IP-ready wide area networks. With its newly-expanded suite of Ethernet services and nationwide footprint, MCI delivers uniform carrier-grade solutions that simply enable IP applications, like streaming media and distance learning, as well as LAN-to-LAN communications.

MCI's new Ethernet suite includes new U.S. Private Line Ethernet Services, expanded Internet Dedicated Ethernet Service coverage from five to 25 markets across the U.S. and enhanced Metro Private Line Ethernet Service with higher speeds and additional features. Available On-net via MCI's fiber-lit buildings and Off-net in select locations, MCI's Ethernet services offer businesses quick and easy access to additional bandwidth, Internet connectivity and the ability to rapidly transfer and share increasingly larger files like graphics.

"MCI continues to advance its data networking solutions to keep pace with the changing face of technology and business," said Nancy Gofus, MCI senior vice president, Product Management. "MCI's new Ethernet capabilities and expanded coverage will enable companies to effectively extend their local area networks beyond the metropolitan coverage area to build next generation IP-based wide area networks simply and cost-effectively."

Delivering on the company's Converged Packet Access strategy announced today, MCI is offering secure, end-to-end Ethernet solutions over a private infrastructure that will support new business applications, like storage, to handle the growing volume of corporate data. MCI's new Ethernet data services are ideal for companies in the financial, healthcare and education industries, especially those required to meet new industry regulations for data replication and archiving, and the support of new online applications. For example, Ethernet-based services are well suited to hospitals that need to share medical imaging between physician offices or for graphics companies that transfer gigabyte-sized files from design centers to printing locations.

DoubleClick Inc., the leading provider of solutions for advertising agencies, marketers and Web publishers, has found Ethernet to offer numerous advantages in support of its Internet infrastructure. Today, DoubleClick uses MCI's Metro Ethernet Network to connect to MCI's Premium Data Centers, where DoubleClick's servers are securely housed and directly connected to MCI's global IP network. DoubleClick also uses MCI's Internet Dedicated Ethernet Service to provide high-speed connections to Web servers located in a separate data center to ensure its content is always up and available. MCI's Ethernet solution enables DoubleClick to deliver quick and reliable content downloads.

"With our high-performance Internet infrastructure, DoubleClick provides consistent quality results for our customers," said Greg Tagaris, DoubleClick VP of Global Technology Operations. "And now with MCI's new Ethernet capabilities, DoubleClick will be able to easily evolve our Internet platform to accommodate the continuing growth of our business."

"MCI is one of very few providers that offer a robust Ethernet product set nationally," said Brian Washburn, senior analyst with research firm Current Analysis. "Ethernet as a telecom service is gaining hold in the U.S., and MCI is in a good position to capitalize on business demand with both metro and long-haul Ethernet services that reach across its expansive network footprint."

For the first time, MCI is offering long distance Private Line Ethernet Services in the U.S. Beginning in August, MCI U.S. Private Line customers can connect their business locations using Ethernet on a nationwide basis to increase bandwidth and lower costs, without sacrificing network quality and performance. Using an Ethernet over SONET infrastructure, MCI will provide carrier-grade service

reliability backed by 100 percent availability and a two-hour Mean Time To Repair (MTTR) service level agreement (SLA) for On-net services.

MCI's Metro Private Line Ethernet Service provides a dedicated, highly reliable point-to-point service between locations within the same LATA through a standard, high speed Ethernet interface, while supported by a 100 percent network availability SLA for On-net services. Beginning in August, this service will be available in additional speeds of 10 Mbps, 40 Mbps, 100 Mbps and 1 Gbps. This fall, MCI will add Fibre Channel, FICON and ESCON Storage capabilities to this offering.

Expanding from five to 25 markets in September, MCI's Internet Dedicated Ethernet Service delivers access to the Internet at bandwidth levels ranging from 1 Mbps to 600 Mbps with 1 Gbps available upon request. This fall, this solution will be available with MCI's fully managed IP VPN Dedicated offering to provide secure connectivity to businesses through high-availability, high-speed links.

MCI also offers Ethernet service in EMEA and Asia Pacific that reflect regional differences in service delivery, including availability in the U.K., France, Germany, Netherlands, Sweden, Italy, Switzerland, Belgium, Luxembourg, Australia, Singapore, Hong Kong, Japan, Taiwan and Korea. MCI has plans to offer International Private Line Ethernet Services to EMEA and Asia Pacific before the end of 2004.

About MCI

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- 20 July, 2004

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MCI Triples DSL Coverage Through New Edge Networks

--Expanded Relationship Enables MCI to Offer Broadband DSL Services to More Businesses in More Cities--

ASHBURN, Va. and VANCOUVER, Wash., JUNE 7, 2004 - MCI, Inc.(MCIA.PK) and New Edge Networks, a national provider of multi-site broadband networks for business and carrier customers, today announced they have extended their strategic relationship to deliver additional Digital Subscriber Line (DSL) services to MCI business customers nationwide. Through New Edge's expanded broadband reach called 'BigFoot,' MCI will now offer and support DSL services in more than 300 metropolitan areas across the United States.

Under the agreement, New Edge Networks will enable MCI to triple its current DSL footprint to reach more than 7,800 switching locations across the U.S. With BigFoot, MCI's new DSL coverage will reach approximately 75 percent of all U.S. locations where DSL is available today.

"This is a significant expansion of MCI's nationwide broadband capabilities that will enable us to provide more comprehensive coverage and service for small and medium-sized businesses, retail operations and teleworkers across the country," said Nancy Gofus, MCI senior vice president, Product Management. "Working with New Edge, MCI's nationwide footprint can provide greater simplicity and value for companies looking for a one-stop solution to deploy broadband and IP VPN services across multiple geographic locations."

As part of its overall broadband strategy, MCI will enhance its current DSL services as well as roll-out new ones. This fall, MCI plans to launch a suite of new Internet Solo Asymmetric DSL (ADSL) offerings to deliver more affordable Internet connectivity for small and medium-size businesses and teleworkers. MCI's new Internet DSL services along with its IP VPN Broadband Service will provide a low-cost, secure, "always-on" connectivity option for businesses in new markets.

"As a single source provider, New Edge Networks can help MCI offer its customers expanded services, while eliminating the costs and complexity of managing multiple carrier relationships," said Dan Moffat, president and CEO of New Edge Networks. "Now MCI customers can enjoy the affordability, performance and cost advantages afforded by its DSL solutions, without the difficulty and cost of self-deploying these services across the U.S."

With its BigFoot coverage, New Edge Networks has wider reach inside Regional Bell Operating Company (RBOC) territories than any of the RBOC's. This is because New Edge Networks has its own DSL equipment and access to other carriers' facilities in central office locations where the RBOCs have not yet introduced DSL. New Edge Networks also offers a wider choice of DSL options than what is generally available from the RBOC.

In October, 2003 New Edge Networks and MCI entered into an agreement that allows New Edge Networks to offer its customers expanded network reach into MCI's DSL network. As part of its BigFoot initiative, New Edge Networks has similar agreements with all of the RBOCs, major independent DSL carriers, as well as cable and satellite service providers.

About MCI

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About New Edge Networks

New Edge Networks is a single-source national provider of secure multi-site managed data networks and

dedicated Internet access for businesses and communications carriers. New Edge Networks seamlessly integrates a wide variety of last-mile broadband access services available through multiple carriers, technologies, and geographic regions worldwide. Its customers include telecom carriers, small to midsize businesses, large corporations, and their telecommuters anywhere. New Edge Networks owns a nationwide multi-services network with more than 850 carrier-class switches and Internet routers. It has one of the country's largest coverage footprints with a strong presence in small and midsize markets. Frost and Sullivan selected New Edge Networks as its 2004 Telecom Company of the Year. The company's Web site is www.newedgenetworks.com. Telephone: 1-360-693-9009.

- 7 June, 2004

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MCI Bridges Private and Public Networks to Help Customers Securely Tap into IP

--Businesses now can easily extend Frame, Private IP and IP VPN data networks to leverage new capabilities, gain greater functionality and optimize network costs--

NEW YORK CITY, MPLSCon, May 26, 2004- As part of its Convergence Networking strategy, MCI, Inc. (MCI.A.PK) today announced it has brought together its private data and public Internet Protocol (IP) networks to deliver a new model for building customer networks. With the deployment of its VPN Network Gateway, MCI uniquely affords businesses significant advancements in networking, including an easy and simple migration path to IP, private and public network sites that seamlessly interoperate and the ability to select connectivity on a location-by-location basis.

Representing the second phase of the company's Secure Interworking Gateway (SIG) strategy, MCI's new platform gives businesses a new means to derive more life and functionality from their existing Frame, Private IP and IP VPN networks while significantly reducing the costs associated with deploying next-generation networks. Immediately available, these new capabilities are offered to domestic and U. S.-based multinationals.

"Our goal is to make IP easily accessible to all businesses," said Nancy Gofus, MCI senior vice president of Product Management. "With MCI's new gateway capabilities, we are offering customers that and much more. Whether a business is moving from traditional services to IP or has already made that move, our Interworking platform lets customers transparently extend their IP environment at their own path and pace."

MCI's new VPN Network Gateway enables the company to build and/or re-architect customer networks to deliver the best overall performance and value by using a hybrid mix of technologies that can transparently co-exist with IP. This allows companies to use multiple technologies for dedicated connections and local loop access on a site-by-site basis resulting in greater efficiency, access to the Internet and enhanced network functionality.

One of the first to benefit from MCI's Interworking deployment is Conestoga-Rovers & Associates, a family of companies providing comprehensive engineering, environmental consulting, construction, and information technology (IT) services. The professional services company was able to re-architect its 20-site frame relay network to better manage its traffic which had become congested. By moving some of its sites to an IP VPN connection, the company will be able to increase bandwidth at these sites while giving employees always-on access to the Internet.

"MCI's VPN Network Gateway will provide improved performance at lower cost, allowing for our staff to be better connected and able to service our clients," said Ian Richardson, vice president, Conestoga-Rovers & Associates.

MCI's new gateway was designed and developed to provide vast scalability, global reach and resiliency and is ideal for any size business. Enabling enterprises to transition to new technology with ease, customers do not need to buy or lease additional hardware. As a network-based solution, MCI owns, manages, monitors and updates the secure gateway deployed within its own infrastructure and ensures seamless delivery of customer traffic from origination to destination. By outsourcing this function to MCI, customers can instead focus more on their core business.

In keeping with MCI's emphasis on simplicity and value, pricing for this new option is based solely on the bandwidth required for the interconnection between the customer's networks. MCI plans to roll out this service in Europe and Asia Pacific later this year.

Announced in 2003, MCI's SIG strategy is enabling the company to roll-out new services and capabilities by leveraging the interoperability and intelligence within its network. Last June, the company marked the first phase of SIG with the launch of its IP VPN Remote - Network based service. The third phase of

MCI's Secure Interworking Gateway will be available later this year and will provide network-based firewalling capabilities, strengthening MCI's network-based security options for enterprise customers.

MCI's Data and VPN Portfolio

MCI offers the most extensive suite of managed VPN and data networking services to meet every customer's need and management preference-from traditional private line, frame relay and ATM networks to advanced VPN solutions-all backed by the highest performance guarantees. This approach enables customers to maximize internal resources while enhancing their business continuity efforts and increasing their return on investment. Each solution runs over MCI's award-winning global IP and facilities-based data networks and is a part of the full continuum of integrated communication products and services MCI provides to enterprises of all sizes around the world.

About MCI

MCI, Inc., (MCIA.PK), is a leading global communications provider, delivering innovative, cost-effective, advanced communications connectivity to businesses, governments and consumers. With the industry's most expansive global IP backbone, based on the number of company-owned points of presence, and wholly-owned data networks, MCI develops the converged communications products and services that are the foundation for commerce and communications in today's market. For more information, go to www.mci.com.

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MCI Demonstrates World's Fastest IP Network Connection

World's First 40 Gigabits Per Second Throughput is Four Times Faster than Current State-of-the-Art IP Networks

ASHBURN, Va., May 25, 2004 - MCI (MCIA.PK) today announced that through utilizing its optical network it has achieved the world's fastest Internet Protocol (IP) transmission ever. This technology trial highlights how next-generation technology will address the emerging needs of carriers and service providers to deliver converged IP services, such as data, voice, video as well as multimedia applications to customers of all sizes.

As MCI continues to execute on its IP convergence strategy, the 40 gigabits per second (Gbps) trial signifies a strategic milestone in the evolution of IP networking. It is also a tangible example of MCI's commitment to implementing next-generation technology to enable an all-IP future for its customers.

"MCI continues its strong leadership position by hosting this industry first 40 Gbps trial over the MCI global IP network," said Jack Wimmer, MCI vice president of Network Architecture and Advanced Technology.

"Today the promise of high-capacity Internet technology took another big step forward," said Wimmer. "With the rapid growth of broadband access and the continuing need to deliver advanced capabilities to businesses, 40 Gbps technology will enable MCI to cost-efficiently meet greater customer demand. The advancement today confirms the viability of 40 Gbps technology."

The technology trial took place over MCI's optical fiber network between points-of-presence (PoPs) located in San Francisco and San Jose, Calif. carrying 40Gbps of traffic over a single full-duplex Optical Carrier (OC)-768c interface. Two IP routers were connected across the MCI network via a wavelength utilizing StrataLight's OTS-4000 Optical Terminal Subsystem.

"MCI has always engineered our network with the future in mind," said Wimmer. "With our previously announced deployment of an Ultra-long haul Dense Wavelength Division Multiplexing (DWDM) transport network, MCI is preparing our network for the 40 Gbps evolution."

As an industry leader in the delivery of IP services, one of MCI's objectives is to use its vast global network to enable customers to create, store, deliver and manage their digital media and to deploy applications that simplify, secure and transform their businesses. Forty (40) Gbps technology enables maximum service flexibility without compromising performance, and sets the stage for MCI to introduce bandwidth-intensive IP-based business applications like web services, multimedia content distribution, grid computing, real-time imaging and storage networking.

Through 40 Gbps technology, customers will be able to send larger streams of content and other applications important to their business across the network in just fractions of a second. For example, with 40 Gbps networking MCI could multicast approximately 2000 High Definition TV (HDTV) video streams simultaneously -- four-times faster than today's fastest connection.

About MCI

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- 25 May, 2004

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- 25 May, 2004

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MCI and Microsoft Join Forces to Deliver Next-Generation Business Communication and Collaboration Solutions

First Solution Includes MCI Net Conferencing Powered By Microsoft Office Live Meeting

ASHBURN, Va. and REDMOND, Wash., May 11, 2004 - MCI (MCI.A.PK) and Microsoft Corp. (Nasdaq "MSFT") today announced a global strategic relationship to jointly develop and market communication and collaboration solutions featuring Microsoft Office Live Meeting, beginning with the next generation of MCI's Net Conferencing services. Integrated with MCI audio conferencing, this new service will be offered by MCI across the globe to enterprise and small and medium-sized businesses. In addition, Microsoft and MCI are establishing a relationship as preferred communication and collaboration partners, including Web conferencing services.

This agreement expands on the companies' existing relationship, and further demonstrates their commitment to providing superior voice and data communication services. Through this strategic relationship, customers will benefit from MCI's award-winning advanced network service and Microsoft's leadership in software technologies to deliver innovative new collaboration and communication solutions that enhance employee productivity. These new tools will empower companies, teams and individuals to collaborate in real time from various devices using multiple communications channels, including Web conferencing, security-enhanced instant messaging, audio conferencing and rich voice-centric applications.

"MCI and Microsoft are combining resources and experience to focus on the fast-growing collaboration arena, which is a strategic market for both companies," said Michael Capellas, MCI President and CEO. "As collaboration products and services continue to grow in popularity, MCI and Microsoft are uniquely positioned to lead in the adoption of next-generation communications solutions."

This strategic alliance commits MCI and Microsoft to co-develop new real-time communication applications in the future, such as access to presence-based services for voice over Internet protocol (VoIP). Currently, MCI is working with Microsoft on integrating a PC and telephony solution to enable information workers to set up conference calls from within their most utilized Microsoft Office applications.

"Today's agreement between MCI and Microsoft advances our mutual goal of delivering the next generation of real-time communication and collaboration solutions to businesses worldwide," said Steve Ballmer, CEO of Microsoft. "MCI's superior voice and IP services combined with Microsoft Office Live Meeting and other innovative collaboration products and services from Microsoft will help information workers realize the next big leap in productivity."

MCI Net Conferencing Powered by Microsoft Office Live Meeting

With today's announcement, MCI is bringing Microsoft Office Live Meeting to MCI customers and the communications marketplace. This innovative collaboration service helps information workers conduct real-time, interactive presentations over the Internet using a phone, or PC. MCI customers now will have access to a powerful new tool to meet, train, present and collaborate with virtually anyone around the globe without ever leaving their desks. This helps eliminate the costs and hassle associated with many types of business travel, while enhancing remote meeting outcomes through rich, multimedia, and interactive features.

"Microsoft is committed to providing the easiest to use, flexible, reliable and secure technology to build collaborative solutions," said Anoop Gupta, corporate vice president, Real-Time Collaboration Group, Microsoft. "Together Microsoft and MCI are offering customers great new solutions backed by long history of proven, innovative applications that enhance employee productivity. This relationship leverages Microsoft's technology strength and MCI's service and network capabilities to deliver what customers are looking for - intuitive, valuable, reliable solutions that improve business results and reduce costs and wasted time."

MCI Net Conferencing powered by Office Live Meeting delivers an easy-to-use, reliable, Windows-based collaboration client with powerful application-sharing capabilities, integrated with MCI's Instant Meeting audio conferencing for convenient online call management designed to improve business results, and reduce costs and wasted time. Web conferencing is dramatically improving the way companies train employees, conduct customer seminars, launch new products, demonstrate software and manage virtual teams located in adjacent offices or across the globe. According to the 2003 study Meetings in America V, conducted by Impulse Research Corporation, 75 percent of respondents have participated in a Web conference, 39 percent for the first time within the previous 12 months. Of those who have led a Web conference, 73 percent did so for the first time within the prior year.

Pricing and Availability

MCI Net Conferencing powered by Microsoft Office Live Meeting is available immediately. Pricing is available per named-user license, shared seat license and per participant minute. For more service, sales, and trial information, please visit www.mci.com/conferencing.

MCI is the world's largest provider of conferencing services, according to TeleSpan Publishing. Its products include audio, video, and Web conferencing and related streaming services, which help organizations worldwide to meet more productively without the time and costs associated with business travel.

About PlaceWare, Inc. and Microsoft Office Live Meeting

Microsoft Office Live Meeting was developed by PlaceWare Inc., a wholly-owned subsidiary of Microsoft Corp., and provides a real-time, "carrier class," multimedia, Web-based collaboration application and platform for meeting within and across corporate firewalls. Businesses prefer Microsoft Office Live Meeting Web conferencing because of its easy to use, scalable, and highly reliable architecture for Web-based collaboration and presentations. More than 5,300 leading organizations are already using Microsoft Office Live Meeting to more effectively compete in the global marketplace. For more information, visit <http://www.microsoft.com/livemeeting> or call (888) 526-6170.

About Microsoft

Founded in 1975, Microsoft (Nasdaq "MSFT") is the worldwide leader in software, services and solutions that help people and businesses realize their full potential.

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About MCI

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- 11 May, 2004

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MCI Introduces IP Access to Audio and Videoconferencing

Helps Businesses Leverage Network Investments for Cost-Effective Collaboration

ASHBURN, Va., May 11, 2004 - MCI (MCIA.PK) today introduced IP access to its audio and videoconferencing services, enabling organizations to leverage their Internet Protocol (IP) investments for more cost-effective, enterprise-wide collaboration.

These new enhancements, available immediately, allow participants using either IP- or non-IP-based endpoints to join the same audio or videoconference. Customers with native IP connections will not be charged for "meet me" IP voice or video transport, allowing them to fully leverage their IP network investment.

"A growing number of companies are investing in public or private IP network solutions to run multimedia applications like voice and videoconferencing," said Phil Knell, MCI senior vice president of Conferencing. "MCI's new IP conferencing access is a perfect solution for companies that want to maximize their IP-enabled corporate networks and, at the same time, secure a greater return on that investment."

MCI now offers Voice over IP (VoIP) access to subscribers of Instant Meeting, the company's on-demand and most popular audioconferencing service. Instant Meeting customers with IP access can cost-effectively access their conference directly on MCI's IP-enabled bridges. Colleagues on the road, and meeting participants located outside the company's network, will also be able to connect to the Instant Meeting service-via either the public Internet or the traditional Public Switched Telephone Network (PSTN).

By supporting a variety of network access capabilities, MCI is empowering conferencing customers to leverage their existing infrastructure and transition to an IP-based conferencing environment at their own pace. MCI's IP conferencing customers can still enjoy all the features and functionality of Instant Meeting, including Web-based call-management tools, call recording and replay, and support for all access methods.

IP Videoconferencing

MCI customers can also access the features and functionality of MCI's video bridging service through the company's Private IP service, the public Internet, a traditional ISDN network, or any combination.

By incorporating the MPLS capabilities of MCI's Private IP service with its videoconferencing capabilities, customers can prioritize video traffic on their networks to ensure consistent, high-quality transmissions.

MCI is the world's largest provider of conferencing services. Its products include audio, video, and Web conferencing and related streaming services, which help organizations worldwide to meet more productively without the time and costs associated with business travel. To learn more, visit <http://www.mci.com/conferencing>.

About MCI

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- 11 May, 2004

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MCI Uses DSL to Expand Availability of Hosted VOIP Solution

MCI Advantage via DSL Extends Company's Service to More Business Segments

ASHBURN, Va., May 10, 2004 - MCI (MCI.A.PK) today announced the expanded availability of MCI Advantage, its award-winning, hosted Voice over IP (VoIP) solution, to more business segments via MCI's Digital Subscriber Line (DSL). Available in a variety of access speeds, MCI Advantage via DSL addresses the bandwidth demands of satellite and smaller offices, extending MCI's ability to provide businesses of all sizes with feature-rich, IP-based voice, data and video communications.

Available since 2001, MCI Advantage integrates voice and data services while meeting and exceeding the capabilities of traditional PBX services, including dialing plans, range privileges, and enhanced call routing with unlimited local and domestic long distance calling. With three years of experience providing a hosted voice over IP business service combined with its nationwide DSL and local coverage, MCI continues to set the pace for businesses wanting to simply and cost-effectively take advantage of the benefits of VoIP.

DSL access to MCI Advantage is immediately available via MCI's facilities-based DSL service, which covers markets serving many of the top US metropolitan service areas (MSAs) including Los Angeles, CA, Boston, MA and Chicago, IL. Later this year, MCI will more than double its Advantage DSL coverage to reach more than four million businesses via an existing agreement with Covad.

"With new cost-effective broadband access to MCI Advantage, companies of all sizes will be able to migrate to converged networking services more simply," said Nancy Gofus, senior vice president of MCI Product Development. "MCI's unmatched collection of local, DSL, data and Internet assets enables the Company to offer small/medium businesses in markets such as New York, San Francisco and Washington DC, the ability to evolve their communications solutions and reduce their overall costs."

To ensure business quality VoIP, MCI has developed the ability to manage both inbound and outbound voice prioritization and data packet fragmentation for DSL. In addition, the flat-rate pricing structure of MCI Advantage delivers the simplicity companies associate with an IP-based communications solution combined with the ease of use and flexibility of multimedia communications.

Additional Enhancements to MCI Advantage

Working with industry-leading vendors, MCI has led the development and delivery of IP-based communications for enterprise customers. In January 2004, MCI introduced a customized, premise-based solution for its MCI Advantage customers, combining a router, firewall and Quality of Service (QoS) management into a single box. Consolidating the premise equipment into one box means MCI can reduce customer equipment costs and improve performance to-and-from the premise.

In February 2004, the company announced the availability of Advantage via Private IP, MCI's fastest growing VPN service. MCI's Private IP delivers an ideal VPN environment for high-bandwidth, high-priority applications while enabling customers to achieve greater functionality and a better return on investment from their current network operations and streamlined network management. The inherent security and traffic management capabilities of MPLS along with Quality of Service (QoS) is ideal for carrying time-sensitive voice applications because voice packets receive higher priority than data packets when traveling over a single network.

Through its recently announced relationship with BroadSoft, MCI Advantage customers will soon benefit from new business-empowering capabilities, such as Outlook integration, call screening, click-to-talk capabilities, simultaneous ring, auto attendant and Web-based receptionist services. MCI Advantage customers also will be able to leverage a remote offices service which provides "road warriors" and teleworkers with the same network access and functionality on-the-go that are standard in a typical office setting. This remote office feature will allow customers to distinguish personal calls from business calls

and eliminate the need for employees to log and submit business expenses for reimbursement. MCI completed trials of the BroadSoft solution last month and will offer a commercial solution to customers in June 2004.

Overall, these applications will change the way customers do business, by helping drive increased employee productivity, simplifying the way telecommunications are bought and managed, scaling easily as a company grows and positioning customers for future services using Session Initiation Protocol, an Internet Engineering Task Force (IETF) standards-based protocol

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MCI Advantage Adds New VoIP Access And Calling Capabilities

Integration with Private IP Facilitates Multimedia over IP Adoption

New Relationship with BroadSoft Expands Hosted Communications Features

ASHBURN, Va., March 4, 2004 - MCI (WCOEQ, MCWEQ) today announced it has expanded its Voice over Internet Protocol (VoIP) service, MCI Advantage, to immediately include access via the company's fastest growing VPN service, Private IP. In addition, the company is working with BroadSoft, Inc. to provide extended hosted communications capabilities, delivering enhanced voice and data applications in a secure corporate network environment. These capabilities will enable businesses to increase employee productivity both in and out of the office.

"By integrating MCI Advantage with Private IP, we are helping companies achieve the immediate benefits of converged voice, data and video afforded by a flexible IP network environment," said Nancy Gofus, senior vice president and chief marketing officer for MCI. "Our relationship with BroadSoft will take VoIP one step further by eliminating costly PBX equipment and going beyond the realms of traditional voice systems by adding an array of new Web-based features."

With the domestic introduction of Private IP to the MCI Advantage product suite, companies that traditionally use frame relay and ATM networks can simply transition to IP and achieve more secure, converged voice, data and video communications among their employees. MCI's Private IP delivers an ideal VPN environment for high bandwidth, high priority applications while enabling customers to achieve greater functionality and a higher return on investment from their current network operations and streamlined network management.

MCI's recent Private IP network expansion provides companies with an advanced MPLS platform for converged communications. Private IP allows businesses to gain better control over their networks and enhance efficiency by leveraging the inherent security and traffic management capabilities of MPLS along with Quality of Service (QoS) to deliver an ideal environment for carrying time-sensitive applications like voice so it receives higher priority than data when traveling over a single network.

Available since 2001, MCI Advantage is the first network-based business VoIP solution designed to allow customers the ease and efficiency of one network for both voice and data services. By consolidating local, long distance and data services, MCI Advantage customers simplify billing; reduce equipment and management costs; and streamline day-to-day operations. In addition, MCI Advantage customers benefit today from new multimedia applications, such as voicemail that can be viewed as an email attachment or through a Web interface and unified messaging with find-me-follow-me services. MCI Advantage can be accessed via Private IP or MCI's dedicated access IP services.

Through its relationship with BroadSoft, MCI plans to expand its commercial hosted IP Centrex capabilities, enabling MCI Advantage customers to experience the same reliability, quality and calling features they have come to expect from traditional business telephone services, with all the cost savings and multimedia applications that VoIP makes possible.

With the expansion of its hosted PBX and IP Centrex capabilities MCI can integrate new functionality, including call screening, simultaneous ring, auto attendant, third-party conferencing, and Web-based receptionist services. This enables MCI to offer large enterprise customers the voice features they demand in a consolidated package, while delivering cost-effective new communications capabilities to smaller organizations. MCI will begin customer trials of BroadSoft's capabilities in April 2004.

In addition, MCI Advantage customers will be able to set up remote offices providing teleworkers with the same network access and functionality on the go that are standard in a typical office setting. MCI's remote office capabilities will also enable customers to distinguish personal from business calls.

About BroadSoft

BroadSoft is the leading provider of network communications platforms for enterprise and residential markets. With the largest market share in its space worldwide, the company's flagship product, BroadWorks, provides a comprehensive range of applications including residential broadband, collaborative conferencing, Hosted PBX, and IP Centrex, fully integrated into a single platform. BroadSoft was recently named to Boardwatch's list of "The Top 10 Private Companies," and BroadWorks has been recognized as the "Product of the Year" by the leading telecommunications industry publications including Communications Solutions, Internet Telephony and Network Magazine. BroadSoft is located near Washington, DC, in Gaithersburg, Maryland, and maintains a research and development facility in Montreal, Canada. Additional information can be found at <http://www.broadsoft.com>.

About WorldCom, Inc.

WorldCom, Inc. (WCOEQ, MCWEQ), which, together with its subsidiaries, currently conducts business under the MCI brand name, is a leading global communications provider, delivering innovative, cost-effective, advanced communications connectivity to businesses, governments and consumers. With the industry's most expansive global IP backbone, based on the number of company-owned points-of-presence (POPs), and wholly-owned data networks, WorldCom develops the converged communications products and services that are the foundation for commerce and communications in today's market. For more information, go to <http://www.mci.com>.

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Time Warner Cable Partners with MCI and Sprint for Nationwide Rollout of Digital Phone

Multi-Year Agreements to Provide High Value, Carrier Grade IP Voice Service

STAMFORD, CT, December 08, 2003 - Time Warner Cable today announced strategic partnerships with MCI and Sprint, two of the nation's leading telecommunications companies, for the nationwide deployment of Digital Phone, Time Warner Cable's residential Internet protocol ("IP") voice service. Building on the successful rollout earlier this year in Portland, Maine, Time Warner Cable recently launched its residential IP phone service to select customers in North Carolina. The multiple-year deals with MCI and Sprint will help enable the company to continue its aggressive rollout throughout next year.

"We are pleased to partner with MCI and Sprint and benefit from their experience in delivering high quality phone service, their focus on customer service, and desire to be at the cutting edge of VoIP network development," said Time Warner Cable Chairman and CEO, Glenn Britt. "Capitalizing on their local points of interconnection, our broadband cable system and the efficiencies and flexibility of IP technology, Time Warner Cable is now poised to deliver consumers local and long distance telephony services more efficiently, at a lower cost, and with the reliability and quality of service that customers require."

MCI and Sprint will assist Time Warner Cable in the provisioning of Digital Phone service to customers, termination of IP voice traffic to the public switched telephone network, delivery of enhanced 9-1-1 service, local number portability and carrying long distance traffic.

The agreement also marks a major expansion for MCI and Sprint into the cable wholesale market resulting in a prospective revenue stream with strong growth potential. Both companies plan to leverage their telecom assets and communications expertise in order to help drive this expansion and deliver telephony solutions.

"Time Warner Cable is a known leader in the industry and it is great to partner with them as they engage in another industry-first with the deployment of Digital Phone," said Paget Alves, president of strategic accounts, Sprint. "Sprint's value proposition to the cable industry makes sense as an alternative to cable operators' building their own voice infrastructure as well as leveraging our existing networks, management experience and technical knowledge. Our intent is to fulfill as many of their telecommunications needs as they want-from basic transport to a fully outsourced solution that includes network design, implementation and management, all backed by guaranteed performance and comprehensive support."

"The time has come for a new solution that delivers all of the simplicity, quality and value that customers want - full service communications, high-speed Internet and video -- all in one package, on one bill, from a single provider," said Jonathan Crane, MCI executive vice president of corporate development and strategy. "This partnership represents the next evolution in consumer communications - leveraging the added capabilities of cable and the global reach of the MCI IP network to create services that leave the old public switched network behind."

Digital Phone includes unlimited local, in-state and domestic long distance calling for one low monthly price. By leveraging new technology on its existing advanced managed network with quality of service standards, Time Warner Cable is able to offer phone service at a flat price and ensure that customers receive the level of quality offered by traditional telephone service.

Consumers switching to Digital Phone can keep their existing phone numbers and retain their directory listings. Standard features of the service include 411 directory assistance, 611 service calls, Enhanced 9-1-1 emergency service, operator assisted calls, call waiting, caller ID and voice mail. Additionally, the residential phone service connects to each telephone jack in the home by utilizing whole-home wiring.

About Time Warner Cable

Time Warner Cable owns and manages cable systems serving 10.9 million subscribers in 27 states, which include some of the most technologically advanced, best-clustered cable systems in the country with more than 75% of the Company's customers in systems of 300,000 subscribers or more. Utilizing a fully upgraded advanced cable network and a steadfast commitment to providing consumers with choice, value, and world-class customer service, Time Warner Cable is an industry leader in delivering advanced products and services such as video on demand, high definition television, high-speed data, wireless home networking, and digital video recorders. Time Warner Cable is a subsidiary of Time Warner Inc.

About WorldCom

WorldCom, Inc. (WCOEQ, MCWEQ), which currently conducts business under the MCI brand name, is a leading global communications provider, delivering innovative, cost-effective, advanced communications connectivity to businesses, governments and consumers. With the industry's most expansive global IP backbone, based on the number of company-owned POPs, and wholly-owned data networks, WorldCom develops the converged communications products and services that are the foundation for commerce and communications in today's market. For more information, go to <http://www.mci.com>.

About Sprint

Sprint is a global integrated communications provider serving more than 26 million customers in over 100 countries. With approximately 68,000 employees worldwide and nearly \$27 billion in annual revenues, Sprint is widely recognized for developing, engineering and deploying state-of-the-art network technologies, including the United States' first nationwide all-digital, fiber-optic network and an award-winning Tier 1 Internet backbone. Sprint provides local communications services in 39 states and the District of Columbia and operates the largest 100-percent digital, nationwide PCS wireless network in the United States. For more information, visit www.sprint.com.

- 8 December, 2003

PR Contact:

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NEWS

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MCI and Time Warner Cable Partner to Deliver Next Generation, IP-Enabled Communications

ASHBURN, Va., December 08, 2003 - MCI (WCOEQ, MCWEQ) today announced that it has entered into a multi-year, multi-million dollar agreement with Time Warner Cable to provide consumers with next-generation voice-over-IP (VoIP) communications services utilizing MCI's global voice and data network.

As a result of the services provided by MCI under the terms of the agreement, Time Warner Cable will be able to deploy its residential Internet protocol ("IP") voice service, Digital Phone, nationwide. In addition to providing local points of interconnection to terminate IP voice traffic to the public switched telephone network, MCI will also deliver enhanced 9-1-1 service, local number portability as well as manage network integration and electronic bonding of both companies' order entry systems.

"The time has come for a new solution that delivers all of the simplicity, quality and value that customers want - full service communications, high-speed Internet and video -- all in one package, on one bill, from a single provider," said Jonathan Crane, MCI executive vice president of Corporate Development and Strategy. "This relationship represents the next evolution in consumer communications - leveraging the added capabilities of cable and the global reach of the MCI IP network to create services that leave the old public switched network behind."

The agreement also enables the cost-efficient use of both companies' access facilities, simplifies pricing and offers new communications features that not only benefit consumers today but also pave a logical migration path toward new communications technologies in the future.

About WorldCom

WorldCom, Inc. (WCOEQ, MCWEQ), which currently conducts business under the MCI brand name, is a leading global communications provider, delivering innovative, cost-effective, advanced communications connectivity to businesses, governments and consumers. With the industry's most expansive global IP backbone, based on the number of company-owned POPs, and wholly-owned data networks, WorldCom develops the converged communications products and services that are the foundation for commerce and communications in today's market. For more information, go to <http://www.mci.com>.

- 8 December, 2003

PR Contact:

Name: Claire Hassett
Tel: (800) 644-
NEWS

BELLSOUTH APPENDIX

TAB 12

COPY OF TRANSCRIPT

BEFORE THE
FLORIDA PUBLIC SERVICE COMMISSION
Docket No. 030851-TP

In the Matter of
IMPLEMENTATION OF REQUIREMENTS
ARISING FROM FEDERAL COMMUNICATIONS
COMMISSION'S TRIENNIAL UNE REVIEW;
LOCAL CIRCUIT SWITCHING FOR
MASS MARKET CUSTOMERS.

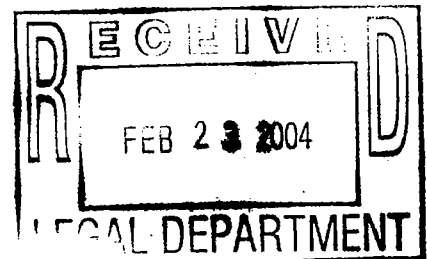
CONFIDENTIAL DEPOSITION OF

PAUL M. GAYNOR

February 19, 2004
9:11 a.m.

675 West Peachtree St., Suite 527
Atlanta, Georgia

Phyllis A. Lee, CCR-B-2321, RPR, CSR(IL), CRR



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BST Reply Appendix 000338

1 Q. Do you know what the approximate
2 amount of PwC's billings to BellSouth would have
3 been for 2002?

4 A. That information is actually filed in
5 a proxy that BellSouth puts forth in their
6 annual reporting to SEC. I don't know that
7 number off the top of my head, so I'm not
8 going to just throw it out. But if you go to
9 the proxy, it's there.

10 Q. Okay.

11 A. And all companies, all public
12 companies need to file what their external
13 auditors -- so, it will be there for you.

14 Q. Okay. Is this the first attestation
15 that you have given for BellSouth?

16 A. Yes, it is for myself.

17 Q. For you personally, for Paul Gaynor?

18 A. Yes.

19 Q. All right. And is this the first
20 attestation that you have given on behalf of
21 PwC?

22 A. No.

23 Q. Okay. What other attestations have
24 you given?

25 A. I've given attestations for AT&T.

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BSI Reply Appendix 000339

1 Q. Now, backing up to an audit, isn't
2 it fair to say that an audit as usually used
3 in the accounting profession would be a more
4 detailed or more comprehensive review than an
5 attestation?

6 A. An external audit of financials is a
7 form of attestation.

8 Q. Okay. And why did BellSouth want
9 this attestation?

10 A. I'm presuming it's in its
11 relationship to the triennial review. However,
12 I have not sat down with BellSouth to determine
13 what their intent of this report and how it's
14 being applied with their arguments is to be
15 used. So I don't know that answer. You know,
16 to be specific more than that you are looking
17 for, probably.

18 Our view is, we need to be objective
19 and independent. So to the extent how they
20 want it, I don't want to know that.

21 Q. Okay.

22 A. I just want to apply the standards
23 to what has been asked. What happens to it
24 subsequent to that, I can only deal with it to
25 where the report gets distributed to.

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1 CLEC. And then brought -- you know, worked
2 through in a process with BellSouth the
3 incumbent.

4 Q. And how would you define "bulk
5 migration," bulk migrations, actually?

6 A. Yeah, in some ways I just described
7 it in that definition of "will enable." That
8 bulk migrations represents the identification of
9 a series of lines in mass that working through
10 a transaction begin -- you know, beginning with
11 the CLEC. That instead of doing a cut on a
12 one off basis, one line at a time, that this
13 will allow the identification of many and have
14 it completed in a time frame that's agreed upon
15 by both parties.

16 That's my understanding of it.

17 Q. Okay. Wouldn't it be correct to say
18 that as described, this attestation or this
19 first management assertion would be a review of
20 whether BellSouth followed its Bulk Migration
21 Process?

22 A. Followed its Bulk Migration Process
23 and also tested the capacity to perform up to a
24 certain number.

25 Q. Now, PwC in its attestation is not

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BSR Reply Appendix 000341

1 at the point in time when we were doing these
2 tests and there was at least one technician for
3 every one of the PwC people. Particularly at
4 their remote terminals, there was one person for
5 -- you know, one PwC person and one field
6 technician.

7 Within the central office, I believe,
8 there was two central office people to each PwC
9 person. We had, I believe, three to four
10 people in the central offices during the test
11 and approximately seven to eight people in the
12 field doing remote work during the day. Some
13 people started their day in the central office
14 and then subsequently went out into the field.

15 Q. And when the PwC people were in the
16 central office observing the test, was there
17 other activity going on in the central office?

18 A. Yes.

19 Q. Okay. Other framework activity going
20 on like normal in the course of -- ordinary
21 course of business type activity in the frame
22 and other central office activity besides just
23 the testing?

24 A. Yes, it appeared that there was.

25 Q. Okay.

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BSF Reply Appendix 000342

1 so it's not... but I think at the -- you know,
2 at a reasonable level, that's what transacted,
3 you know, for each one of these tests.

4 Q. All right. And let's go to another
5 period of time.

6 A. Sure.

7 Q. Before the actual test day you would
8 agree, wouldn't you, that rewiring work has to
9 be done --

10 A. Yes.

11 Q. -- to prepare for the cutover?

12 A. Yes.

13 Q. All right. Did your group observe
14 the rewiring process?

15 A. We did not observe all of the
16 rewiring. That work -- that preparatory work
17 was done prior to us performing the test.

18 Q. By -- all right, I understand that
19 was done before the test was performed.

20 Are you saying it was not a task of
21 the PwC representatives to observe all of that
22 process?

23 A. We concluded that by testing the
24 dial tone subsequent to the cutover, that in
25 effect you would be testing where the prewire --

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BSI Reply Appendix 000343

1 rewiring was completed.

2 Q. All right. You mentioned that --
3 you said you didn't observe all of the rewiring
4 process. What part of it did you observe?

5 A. We observed the rewiring of the
6 CLEC block, the configuration of the Pseudo
7 CLEC. So I would -- when I was describing the
8 -- you know, we didn't observe it all, that we
9 did. We did observe the creation of the Pseudo
10 CLEC, which had the physical wire from the OE
11 to the CLEC's block.

12 But key here is that, you know, at
13 least the way we concluded it, is to the extent
14 that we could make sure dial tone existed
15 subsequent to the cut, that in effect the
16 conversion had taken place.

17 Q. Do you know how long the rewiring
18 process took?

19 A. I don't know that.

20 Q. Do you know whether the technicians
21 at the three COs knew that the migrations for
22 the tests would occur the day that they did
23 occur?

24 A. Repeat that one more time, I'm
25 sorry.

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BSR Reply Appendix 000344

BELLSOUTH APPENDIX

TAB 13

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Industry

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Industry Overview

October 15, 2004

The Death of UNE-P: Not Without Risks.

GICS SECTOR	TELECOM SERVICES
US Strategist Weight	3.3%
S&P 500 Weight	3.8%

• UNE-P Transition Could Cut Either Way for Bells

Today UNE-P lines yield \$4-5 billion in annual wholesale revenue for the Bells, about 5% of Bell wireline revenue, we estimate. While the transition from UNE-P represents an opportunity for the Bells to generate incremental revenue, the transition could also potentially result in lower net revenue if the Bells don't win the majority of UNE-P lines and/or if they are forced to lower local ARPUs. Potential competition from CLECs, wireless, and VoIP will put pressure on the Bells over the next few years as they attempt to win UNE-P customers and maintain ARPUs, in our view.

• Our Estimates Reflect Assumption that UNE-P is Neutral to Slightly Positive

Recognizing that UNE-P represents both a threat and an opportunity for the Bells, our analysis leads us to assume neutral to slightly positive top- and bottom-line impact to our Bell estimates. We refine our company-specific UNE-P forecasts for Verizon, SBC, BellSouth, and Qwest, adjusting our revenue and EPS estimates (see Exhibit 7 inside). We discuss scenarios that could result in upside or downside to our estimates.

• Our industry view is In Line

Our industry view reflects our belief that the telecom services industry will perform more broadly in-line with the general market for the remainder of 2004 as the market becomes more defensive and focused upon large cap, quality stocks, rather than low priced, high volatility names that have thus far driven the rally. Longer term, we believe industry structure and secular pressures will persist.

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The Death of UNE-P: Not Without Risks.

Bells' Benefiting from End of UNE-P is Not a Given

Since UNE-P regulations changed in June and AT&T, MCI, and Sprint ended promotion of UNE-P-based service, it has been widely assumed that UNE-P will be positive for the Bells. Most optimistically, the Bells could win back UNE-P lines as local access customers at a higher ARPU, potentially without spending much to gain them as UNE-P promotions end. However the end of UNE-P represents the end of a distribution channel that currently yields \$4-5 billion in revenue for the Bells annually. In order for the Bells to maintain this revenue base they must win the majority of UNE-P lines as subscribers, without spending much to acquire them and without lowering ARPUs despite increasing competition from wireless and VoIP. The transition away from UNE-P represents an opportunity for the Bells, wireline voice revenue, in our view.

Exhibit 1

The Death of UNE-P

- Most of 17 million UNE-P lines will churn to new carriers
- UNE-P lines make up 12% of Bell switched access lines
- UNE-P lines could largely disappear in 1-3 years
- \$4-5 billion in Bell revenue at risk
- **Opportunity:** incremental revenue on win-backs at potentially low incremental cost
- **Threat:** Bells may succeed in retaining only a portion of current UNE-P revenue, and win-backs cause SG&A and/or churn to rise

We've taken a closer look at the factors that will determine whether the transition away from UNE-P will help Bell results. Our analysis suggests that while UNE-P declines will likely accelerate Bell access line losses, it should help boost revenue and profits near-term, potentially offsetting the impact of competition from sources such as VoIP. However, in order for the Bells to benefit from UNE-P they must woo the majority of customers without sacrificing the current economics of their local business, which is not without challenges.

Morgan Stanley ModelWare™

ModelWare is a proprietary framework for financial analysis created by Morgan Stanley Research. This new framework rests on the principles of **comparability**, **transparency**, and **flexibility** and aims to give investors better tools to assess the anticipated performance of an enterprise.

ModelWare will provide investors with the following:

- a broad set of consistently defined forecast measures
- an extensive taxonomy of more than 3,500 unique metrics for comparison
- the flexibility to combine data elements and create user-defined metrics for customized analytics
- the transparency to see components of every calculation
- the ability to make rapid, meaningful comparisons across companies, industries, and geographies

For more information on ModelWare, please see "Morgan Stanley ModelWare (ver. 1.0): A Road Map for Investors," by Trevor Harris and team, August 2, 2004.

Exhibit 2

UNE-P Lines by Company: SBC Leads

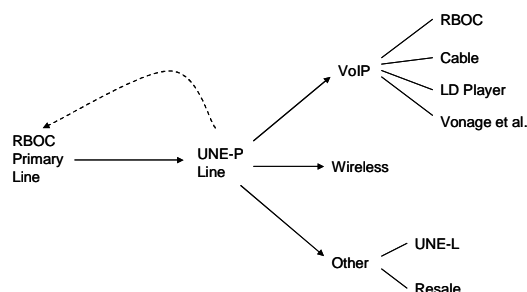
	UNE-P	% Lines	% Total
VZ	5,952	11%	35%
SBC	6,974	13%	41%
BLS	2,889	12%	17%
Q	1,168	8%	7%

Source: Company filings and Morgan Stanley estimates

Total Access Line Declines Should Worsen

Because UNE-P lines are included in the Bell's total access line counts, fewer UNE-P lines will reduce total lines assuming that the Bells don't win back 100% of the lost UNE-P lines as primary lines. The Bells should win back only a portion of UNE-P lines in our view because of competition from CLECs, and VoIP, especially considering that UNE-P customers are likely more price-conscious and less loyal to their local Bell given that they've already switched to a CLEC. AT&T and MCI, for example, will likely encourage customers to migrate to their VoIP or wireless offering. Exhibit 2 illustrates the competition that the Bells face in attempting to win-back UNE-P customers.

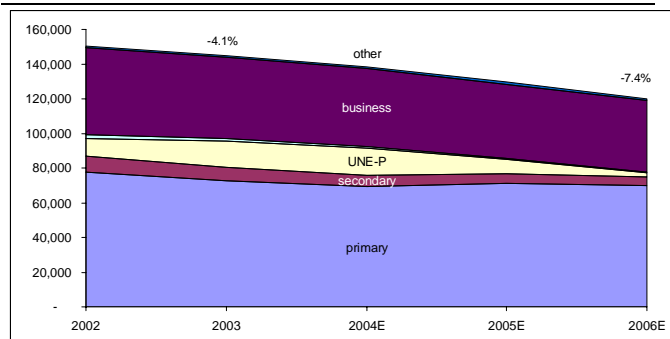
Exhibit 3

Competition for UNE-P Lines

Note: Dotted line indicates Bell win-back opportunity

While total access lines will likely decline faster as a result of AT&T, MCI, and Sprint's decisions to stop promoting UNE-P-based business (see Exhibit 3), primary local voice line trends should improve as the Bells win back lines from UNE-P (see Exhibit 4).

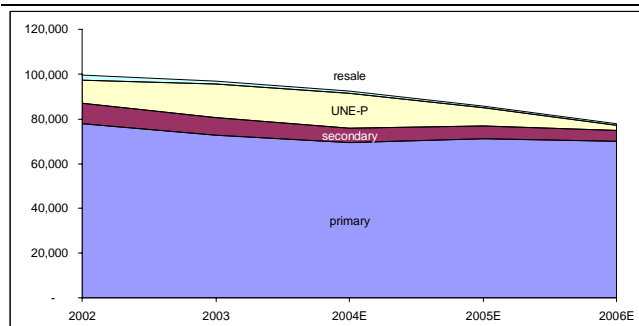
Exhibit 4

Total Access Lines to Decline Faster

Source: Company filings and Morgan Stanley estimates

Note: "Primary" refers to primary local voice lines.

Exhibit 5

UNE-P Win-backs to Boost Primary Lines

Source: Company filings and Morgan Stanley estimates

Note: "Primary" refers to primary local voices lines

Exhibit 4 above illustrates how the decline in UNE-P lines will likely be larger than the increase in primary lines, due to the likelihood that the Bells will win-back less than 100% of UNE-P lines.

The assumptions that drive our line count estimates for the impact of UNE-P changes include the rate at which gross UNE-P adds decline; industry-wide UNE-P churn, which drives UNE-P net adds; and the proportion of reduced UNE-P net adds that are "won back" by the Bells as primary lines. In our base case, we assume that UNE-P gross adds are cut in half sequentially in 3Q04 and 4Q04, and then in 2005 and future years. We assume a 5% monthly industry UNE-P churn rate in 2005, which is roughly the mid-point of anecdotal reports we've heard. We assume churn rates decline to 4% in 2006 and 3.5% in 2007, when high-propensity-to-churn customers have already churned away and increasingly sticky customers remain. And we assume a 75% win-back rate, which could prove conservative.

Our line count model is most sensitive to our churn assumption, and less sensitive to our win-back rate assumption. For example, holding other assumptions constant but increasing the initial churn rate to 7% from 5% results in roughly 70% fewer UNE-P lines ending 2006. Essentially, the churn rate determines how quickly the transition will happen away from UNE-P.

The win-back proportion determines how large of a boost primary lines get from the UNE-P transition. For example, we assume that non-Bell VoIP will have a significant impact on Bell primary local voice lines beginning in 2006. With our base case assumption of a 5% churn rate the transition of UNE-P is still underway in 2006, and our 75% win-back assumption implies that the boost from UNE-P will largely offset VoIP competition in 2006. However, if the UNE-P transition were to take place more quickly and/or win-back rates were lower, we could see more near-term net impact from VoIP. Obviously, also if VoIP has a larger impact than we're assuming we'd see more lines lost regardless of how the UNE-P transition plays out.

Revenue Impact Likely Neutral to Positive

If total access lines, which drive revenue, will be negatively impacted by the UNE-P transition, it would seem to suggest that revenue should also decline. However, our analysis reveals that the fact that average revenue per primary local voice line is higher than average revenue per UNE-P line could result in net higher overall revenue, given certain

assumptions. We've isolated the critical factors as the ratio of UNE-P ARPU to win-back ARPU in comparison to the win-back rate as a percentage of reduced UNE-P lines. For example, if you assume that UNE-P ARPUs are roughly 75% of primary line ARPU (for example a \$24 blended UNE-P ARPU and \$32 blended primary line ARPU), the Bells should see positive revenue impact if they succeed in winning as primary customers more than 75% of the UNE-P lines they lose. In our analysis we assume that won-back UNE-Ps yield a full primary ARPU, but more conservatively, we don't assume they contribute DSL or out of region long-distance revenue.

Our estimates assume that the ratio of UNE-P to primary local voice ARPU is at or slightly below 75% and we assume a 75% win-back rate, implying that our models assume the transition away from UNE-P will be neutral to slightly positive to revenue. There could be upside to our revenue estimates if the win-back ratio is higher than we have modeled or if there's a high take-rate on DSL and LD service for win-backs.

Exhibit 6

UNE-P Could Boost or Decrease Bell Revenue

	Today	Post-Transition	
Upside Scenario			
80% winback	17.0	13.6	lines
high winback ARPU	288	516	annual revenue per line
high take rate on DSL, LD	4896	8772	annual revenue
		79%	increase in annual revenue
Base Case			
75% winback	17.0	12.8	lines
med. winback ARPU	288	384	annual revenue per line
low take rate on DSL, LD	4896	4896	annual revenue
		0%	increase in annual revenue
Threat Scenario			
50% winback	17.0	8.5	lines
lower winback ARPU	288	360	annual revenue per line
low take rate on DSL, LD	4896	3060	annual revenue
		-38%	decline in annual revenue

Source: Morgan Stanley estimates

The UNE-P transition could result in higher or lower revenue, as we illustrate in Exhibit 5 above. There could be downside to our revenue estimates if the incremental revenue from win-backs is higher than we've modeled, however several of the Bells have recently mentioned expectations of incremental revenue in the high teen to low twenty dollar range, which is higher than the less than \$10 that we've assumed. More of a danger in our view is the possibility that primary local voice ARPUs could be squeezed as the Bells compete with VoIP (including their own offerings, which will cannibalize some of their own revenue) and wireless.

An additional forecasting wrinkle is the question of whether UNE-P-based carriers will pass UNE-P rate increases through to their end customers. UNE-P wholesale rate increases could theoretically result in a billion dollars in incremental wholesale revenue for the Bells (\$5 per month *12*17MM lines). However, to the extent that CLECs pass UNE-P rate increases through to end customers, churn could increase, offsetting increased revenue.

EPS Impact Likely Neutral to Positive

Even if the impact of revenue were flat to negative, the UNE-P transition could be positive to the Bells' bottom lines if incremental revenue from win-backs carried higher-than average margins, as we believe the Bells are anticipating. Some of the Bells already had win-back programs in place prior to this year's UNE-P regulatory changes, making it conceivable that they could win former UNE-P customers without much incremental promotion. However, we believe it is more realistic to assume the Bells will increase spending to win back a high proportion of UNE-P lines given the potential boost it could give Bell growth rates.

Changes to Our Estimates

While our base case UNE-P assumptions could be expected to have a slightly positive impact on our estimates, our prior estimates already included our preliminary attempts to model the impact of the UNE-P transition, so our estimate changes reflect refinements to our modeling of the transition, rather than a before- and after- comparison. Also, we have made some other unrelated routine modeling updates that in some cases have a larger impact on our estimates our adjustments to UNE-P transition assumptions. For example, we reduced our Verizon estimates reflecting an increased depreciation assumption in 2005. We significantly lowered our UNE-P revenue assumptions for SBC, and unrelated to UNE-P, we lowered our 4Q04 BellSouth investment income assumption. Exhibit 6 details specific changes to our company EPS estimates.

Exhibit 7

Changes to Our Estimates

		3Q04	4Q04	2004	2005
VZ					
	MS Prior	\$ 0.64	\$ 0.62	\$ 2.47	\$ 2.69
	MS New	\$ 0.64	\$ 0.62	\$ 2.48	\$ 2.65
SBC					
	MS Prior	\$ 0.41	\$ 0.36	\$ 1.54	\$ 1.31
	MS New	\$ 0.40	\$ 0.36	\$ 1.54	\$ 1.33
BLS					
	MS Prior	\$ 0.48	\$ 0.48	\$ 1.95	\$ 1.56
	MS New	\$ 0.49	\$ 0.45	\$ 1.93	\$ 1.57
Q					
	MS Prior	\$ (0.26)	\$ (0.25)	\$ (0.84)	\$ (0.72)
	MS New	\$ (0.26)	\$ (0.26)	\$ (0.85)	\$ (0.72)

*Source: Morgan Stanley estimates***Our industry view is In-line.**

Our industry view reflects our belief that the telecom services industry will perform more broadly in line with the general market for the remainder of 2004 as the market becomes more defensive and focused upon large cap, quality stocks, rather than low-priced, high volatility names that have thus far driven the rally. Longer term, we believe industry structure and secular issues will persist.



ModelWare is a proprietary framework for financial analysis created by Morgan Stanley Research. This new framework rests on the principles of comparability, transparency, and flexibility, and aims to provide investors with better tools to view the anticipated performance of an enterprise. The result of an 18-month global effort, ModelWare harmonizes the underlying data and calculations in Morgan Stanley models with a broad set of consistently defined financial metrics. Our analysts have populated the database with over 2.5 million data points, based on an extensive taxonomy of more than 3,500 unique metrics and more than 400 Morgan Stanley calculations. The ModelWare framework will also have the flexibility to allow analysts and investors to quickly customize their own analytical approach.

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ModelWare EPS illustrates the approach taken. It represents ModelWare net income divided by average fully diluted shares outstanding. ModelWare net income sums net operating profit after tax (NOPAT), net financial income or expense (NFE), and other income or expense. ModelWare adjusts reported net income to improve comparability across companies, sectors, and regions. These adjustments include the following: We exclude goodwill amortization and items deemed by analysts to be "one-time" events; we capitalize operating leases where their use is significant (e.g., in transportation and retail); and we convert inventory to FIFO accounting when LIFO costing is used. For more information on these adjustments and others, as well as additional background, please see "Morgan Stanley ModelWare (ver. 1.0): A Road Map for Investors," by Trevor Harris and team, August 2, 2004.

Exhibit 8**Switched Access Line Estimates**

	2001	2002	2003	2004E	2005E	2006E	2007E	2008E
Primary Lines								
VZ (excludes 2nd	31,188	29,614	27,650	26,002	26,251	25,805	23,830	21,597
SBC	27,909	25,636	24,014	23,627	25,004	25,387	24,873	23,269
BLS	13,974	13,260	12,466	11,695	11,964	11,459	10,770	10,011
Q		9,224	8,636	8,159	7,960	7,459	6,917	6,378
		77,734	72,766	69,483	71,179	70,110	66,391	61,255
Second lines								
VZ								
SBC	6,609	5,723	4,828	4,152	3,612	3,215	2,861	2,547
BLS	2,256	1,926	1,601	1,319	1,082	909	763	641
Q		1,574	1,275	1,029	849	713	599	503
		9,223	7,704	6,500	5,543	4,837	4,224	3,691
UNE-P								
VZ	2,214	3,186	5,019	5,687	3,049	553	-	-
SBC	NA	4,963	6,664	6,450	3,764	1,418	-	-
BLS	601	1,545	2,382	3,052	1,741	1,086	668	407
Q		490	948	1,034	608	388	243	149
		10,184	15,013	16,223	9,162	3,445	911	556
Resale								
VZ	1,433	1,049	743	527	379	277	205	153
SBC	1,550	801	445	298	203	140	98	70
BLS	729	436	250	149	90	56	35	22
Q		68	50	36	27	20	15	11
		2,354	1,488	1,011	699	492	353	257
Business (ex Business wholesale)								
VZ (adjusted to ex	19,199	18,308	17,243	16,433	15,775	15,223	14,691	14,176
SBC	19,764	19,123	18,086	17,369	16,692	16,107	15,544	15,000
BLS	7,652	7,254	6,883	6,608	6,350	6,128	5,913	5,706
Q		5,050	4,607	4,331	4,105	3,962	3,823	3,689
		49,735	46,819	44,740	42,922	41,420	39,971	38,572
Other								
VZ (public lines)	591	522	497	422	401	385	369	355
SBC (coin)	527	510	468	432	415	403	391	379
BLS (other)	209	182	147	94	80	74	68	62
Q (public lines)		117	107	97	92	89	85	82
		1,331	1,219	1,045	988	949	913	877
Total Switched Access Lines								
VZ	60,202	57,974	55,576	52,820	49,053	45,033	41,531	38,410
SBC		56,756	54,505	52,330	49,690	46,670	43,767	41,264
BLS	25,422	24,603	23,729	22,917	21,306	19,711	18,217	16,850
Q		16,523	15,623	14,686	13,641	12,630	11,682	10,813
		155,856	149,433	142,752	133,690	124,043	115,197	107,337

Source: Company filings and Morgan Stanley estimates

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(as of September 30, 2004)

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Total	1,827		656		

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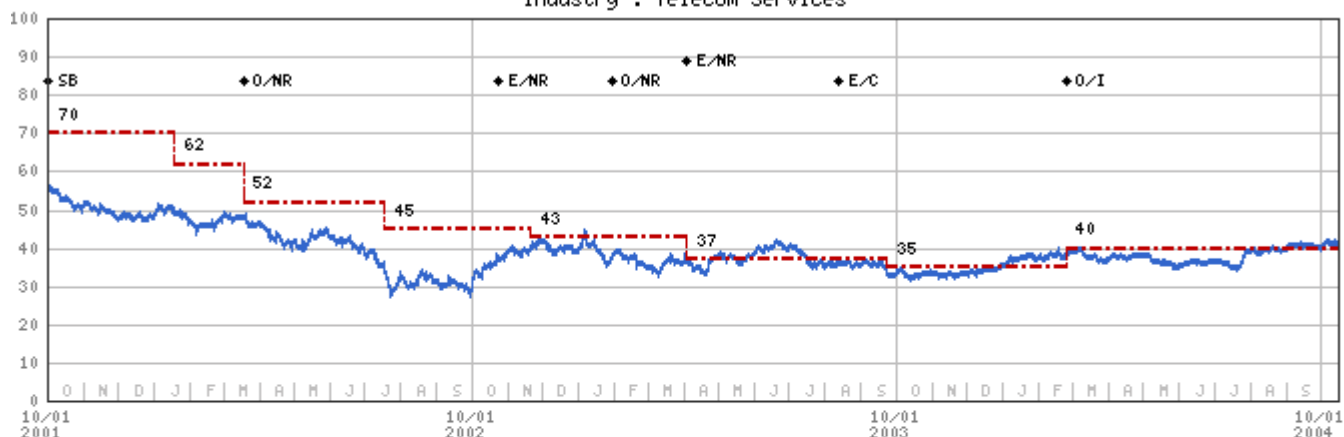
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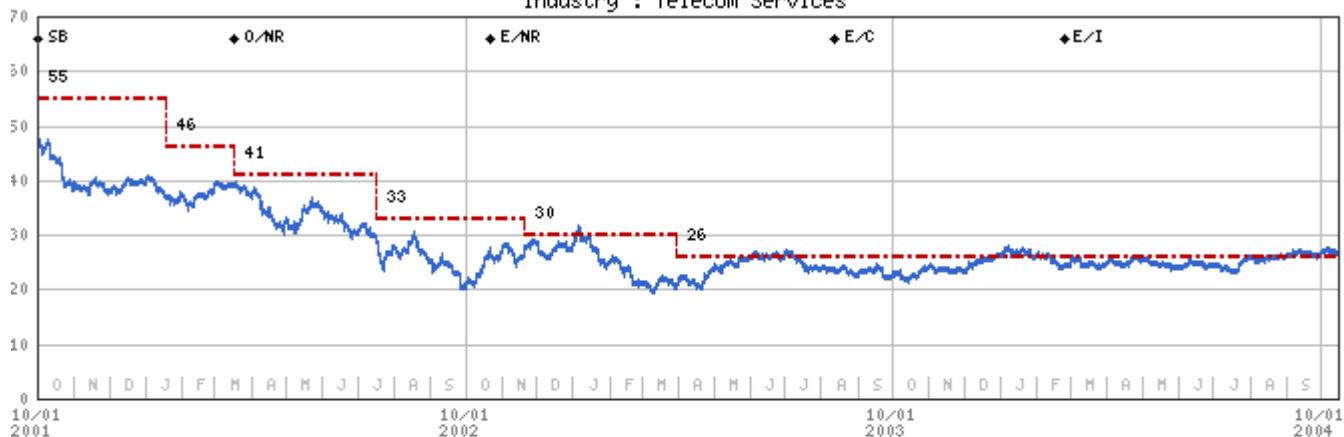
Stock Price, Price Target and Rating History (See Rating Definitions)

Verizon Communications (VZ.N) - As of 10/14/04 in USD
Industry : Telecom Services

Volatility (Introduced 3/9/01. Shading indicates "more volatile" (U) rating.)

Stock Rating History: 6/8/99 : SB; 3/18/02 : O/NR; 10/23/02 : E/NR; 1/29/03 : O/NR; 4/3/03 : E/NR; 8/13/03 : E/C;
2/24/04 : O/I
Price Target History: 8/1/01 : 70; 1/18/02 : 62; 3/18/02 : 52; 7/17/02 : 45; 11/20/02 : 43; 4/3/03 : 37;
9/23/03 : 35; 2/24/04 : 40

Source: Morgan Stanley Research Date Format : MM/DD/YY Price Target -- No Price Target Assigned (NA)
Stock Price (Not Covered by Current Analyst) — Stock Price (Covered by Current Analyst) —
Stock Ratings abbreviated as below (Effective 3/18/02, ratings appear as Stock Ratings/Industry View) ♦
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Stock Ratings prior to 3/18/02: Strong Buy (SB) Outperform (OP) Neutral (N) Underperform (UP) No Rating Available (NAU)
Industry View: Attractive (A) In-line (I) Cautious (C) No Rating (NR)

SBC Communications Inc. (SBC.N) - As of 10/14/04 in USD
Industry : Telecom Services

Volatility (Introduced 3/9/01. Shading indicates "more volatile" (U) rating.)

Stock Rating History: 1/21/00 : SB; 3/18/02 : O/NR; 10/23/02 : E/NR; 8/13/03 : E/C; 2/24/04 : E/I
Price Target History: 4/23/01 : 55; 1/18/02 : 46; 3/18/02 : 41; 7/17/02 : 33; 11/20/02 : 30; 3/30/03 : 26

Source: Morgan Stanley Research Date Format : MM/DD/YY Price Target -- No Price Target Assigned (NA)
Stock Price (Not Covered by Current Analyst) — Stock Price (Covered by Current Analyst) —
Stock Ratings abbreviated as below (Effective 3/18/02, ratings appear as Stock Ratings/Industry View) ♦
Stock Ratings as of 3/18/02: Overweight (O) Equal-weight (E) Underweight (U) More Volatile (V) No Rating Available (NAU)
Stock Ratings prior to 3/18/02: Strong Buy (SB) Outperform (OP) Neutral (N) Underperform (UP) No Rating Available (NAU)
Industry View: Attractive (A) In-line (I) Cautious (C) No Rating (NR)

Qwest Communications Int'l (Q.N) - As of 10/14/04 in USD
Industry : Telecom Services

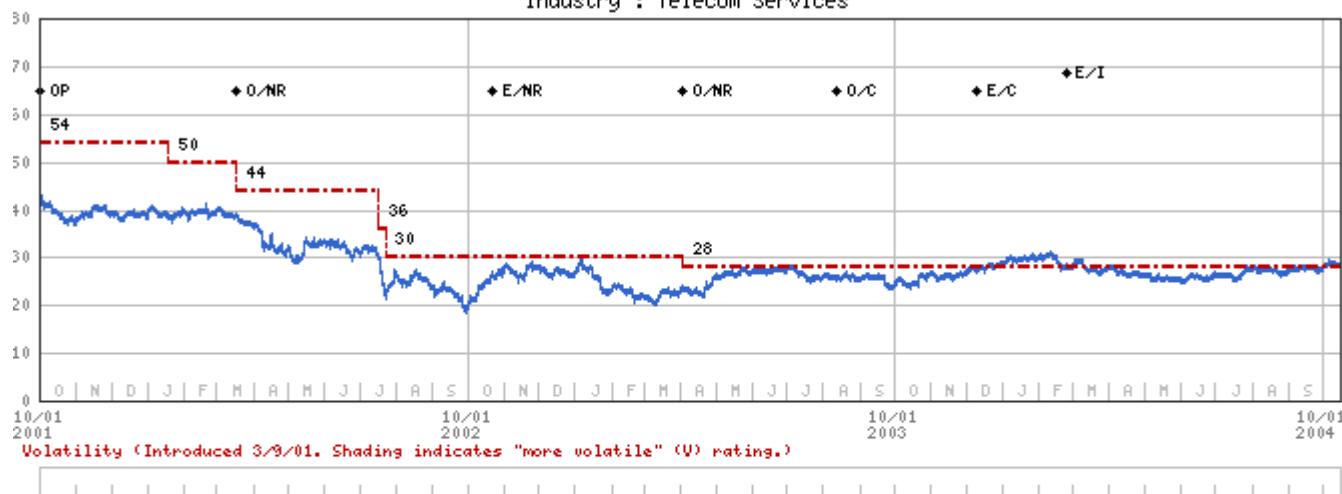


Stock Rating History: 6/20/01 : N; 3/18/02 : U/NR; 8/13/03 : U/C; 2/24/04 : U/I

Price Target History: No Price Target Assigned (NA)

Source: Morgan Stanley Research Date Format : MM/DD/YY Price Target -- No Price Target Assigned (NA)
Stock Price (Not Covered by Current Analyst) — Stock Price (Covered by Current Analyst) —
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Industry View: Attractive (A) In-line (I) Cautious (C) No Rating (NR)

BellSouth Corp. (BLS.N) - As of 10/14/04 in USD
Industry : Telecom Services



Stock Rating History: 1/21/00 : OP; 3/18/02 : O/NR; 10/23/02 : E/NR; 4/3/03 : O/NR; 8/13/03 : O/C;

12/10/03 : E/C; 2/24/04 : E/I

Price Target History: 1/21/00 : 54; 1/18/02 : 50; 3/18/02 : 44; 7/17/02 : 36; 7/23/02 : 30; 4/3/03 : 28

Source: Morgan Stanley Research Date Format : MM/DD/YY Price Target -- No Price Target Assigned (NA)
Stock Price (Not Covered by Current Analyst) — Stock Price (Covered by Current Analyst) —
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BELLSOUTH APPENDIX

TAB 14

CLECs' Choices for Local Switching

By Charles L. Jackson

July 2002

A study prepared for BellSouth

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1 Executive Summary

Although the tasks to be performed by their switches are similar or identical, ILECs and CLECs have vastly different needs for switching capabilities. ILECs need switching equipment that is compatible with their legacy network—including cable routes and operations support systems. CLECs, lacking these legacy constraints, have more freedom when shopping for switches. CLECs, building new systems covering large areas benefit from technologies that permit easy entry with lower fixed costs than traditional systems.¹

New microelectronic and switch technologies, along with the entry of new suppliers, have lowered the cost of switches—especially the new technology switches and the switches from new entrants—have reduced the minimum efficient size of switches, and have made it possible for switches to serve telephone lines hundreds of miles distant from the switch. All these changes expanded the alternatives available to CLECs.

In addition to the option of purchasing switching hardware, CLECs have the alternative of purchasing switching services—both CLECs and ILECs offer wholesale switching services.

Given the facts, CLECs are not competitively impaired without access to unbundled switching. Indeed, the sheer deployment of alternative switches precludes any reasonable claim of impairment. As detailed in the UNE Fact Report 2002, filed as an attachment to BellSouth's Comments in this proceeding, the number of CLEC voice switches has increased from 700 to 1,300 in the three years since the UNE Remand record was compiled, and the number of CLEC data switches has grown from 860 to 1,700.² (Data switches can be used both for data and, increasingly, for voice and thus substitute directly for circuit switches.) Moreover, non-ILEC alternative switches serve customers in wire centers accounting for 86 percent of all BOC switched access lines—and 97 percent of BOC switched access lines in the top 100 MSAs,³ demonstrating effective geographic ubiquity. And these

¹ This paper does not consider the market for packet switching, other than to note that CLECs have deployed a large number of packet switches, which may be used to switch both data and voice traffic.

² *UNE Fact Report 2002*, Section I, Table 1.

³ *Id.*, at p. II-6

switches are being used to serve at least an estimated 13 million business lines and 3 million residential lines.⁴ Finally, as discussed later in this paper, CLECs can and do use their switches to serve customers located in different MSAs or even different states, so that they can greatly expand their customer base without deploying a large number of new switches.

I performed a simple study that confirms the general results of the Fact Report cited above. Universal Access provides a product called C.O. Finder, which permits inquiries to a central office switch database developed by NECA. The November 1998 version of the database listed 58 switch entities serving the District of Columbia, with 49 of those associated with area code 202 in the District. The switches are listed as being owned by Bell Atlantic, Nextel, AT&T Wireless, SWB Mobile, and several other firms. The February 2002 version of the database listed 500 switch entities serving the District with 115 of them associated with area code 202. There has been a significant change in the reported data on non-ILEC switches in the District over a period of a little more than two years.

Considering CLEC access to switching in the context of the FCC's five criteria for impairment—cost, ubiquity, quality, timeliness, and operational impediments—it is clear that the CLECs would not be impaired by being required to deploy their own switches or purchase switching in the marketplace.

About the Author

I began my career as a computer programmer and worked as both a system programmer and a digital designer. I received my PhD in electrical engineering from MIT. I have worked for both the FCC and the House Commerce Committee. Currently, I work as a consultant and a professor. I have written extensively on technology and public policy. I am also an adjunct professor of electrical engineering and computer science at George Washington University, where I have taught graduate courses on mobile communications, wireless networks, and the Internet. I am a member of the FCC's Technological Advisory Council. My full biography is available at www.jacksons.net.

⁴ *Id.*, at Section II, Table 2

2 Switching Needs: CLECs versus ILECs

ILECs and CLECs have different needs for switching capabilities because their networks differ. ILECs need switching equipment that is compatible with their legacy network—including cable routes and operations support systems. Many of the ILECs have extensive operations support systems that they use to manage switch configuration. An ILEC cannot easily install a new switch if that switch is not compatible with the existing operations support system. CLECs, lacking these legacy constraints, have more freedom when shopping for switches. Start-up CLECs benefit from switching systems with lower fixed costs because their scale of operations in the first few years will be far smaller than those of most ILECs.

As a general proposition, the cost of deploying alternative switches is declining dramatically. Bob Lucky, Corporate Vice President of Applied Research at Telcordia Technologies and chairman of the FCC's Technological Advisory Committee, wrote,

A recent study at Telcordia of the economics of packet networks showed a cost advantage of 20-40% for the equipment costs in packet technology relative to circuit technology. However, it is important to realize that this advantage is fast increasing because of the exponentially-declining costs of packet routers. While circuit switching costs are also decreasing, they are doing so at a much slower pace. *One estimate is that routers are doubling their cost effectiveness every 20 months, as compared with a very slow 80 months for circuit switches.* The point is very simple, but profound—the world is working on packet technology and not circuit technology. In technology today it is necessary to "ride the wave" of popularity, because that is where the economics will be most advantageous. Because of the growth of the Internet, that wave today is with packets.⁵

2.1 Background

Telecommunications switching lies at the heart of most local exchange carrier (LEC) services, including plain old telephone service (POTS). The basic idea of a telecommunications switch is

⁵ "NGN and the Packetizing of Telecommunications," by Robert W. Lucky, *Exchange*, Spring 1999, Telcordia Technologies. Emphasis added.

simple. Instead of running wires between every pair of houses in a town, the LEC runs wires to a central point and connects the wires together as needed. This economizes enormously on the cost of wire, but at the expense of having the central connecting point.

At first, a human operator performed the central connecting function. However, mechanization or automation of this task reduced costs. The mechanical systems that performed this function were called switches—perhaps analogous to railroad switching systems or to electrical light switches or perhaps because the earlier manual systems were called switchboards.

To implement equal access and to provide other advanced services, LECs in the United States upgraded their switches in the 1980s and 1990s to modern digital switches such as the Lucent 5ESS and Nortel DMS series switches. These switches were large, relatively expensive (up to several million dollars) systems that included a central computer controlling the system, specialized modules for connecting incoming and outgoing signals, and various auxiliary equipment. Because speech signals are represented internally as digital quantities in these switches, it is common usage in the industry to call these *digital switches*. Digital switches have the advantages of connecting efficiently to digital transmission facilities, such as long-distance fiber networks or digital loop carrier systems, and of using the latest digital electronic technologies to reduce costs. Of course, these digital switches can also connect to analog telephone lines. The connection is made using a *line card* that contains the electronics needed to convert the analog voice signal to a digital signal.⁶

Switches are often categorized as either local or toll switches (also called tandem switches). *Local switches* connect to the user's telephone and need many more capabilities, such as call forwarding and accounting features, that are not needed on toll switches. Local switches are also often called Class 5 switches.

Remote switches or remote switching modules also exist. A *remote switch* is a partial switch, with some of its control logic or administrative features located in a second switch—often called the *host switch*.

2.2 Traditional Cost Structure

Historically, local telephone switches have been expensive. The costs of traditional switches reflect several factors including (1) the fact that much of the manufacturer's costs are software development costs—so the marginal production costs are much lower than the average cost; (2) the fact that there were few competitors in the local switching market until recently; and (3) the fact that, once a carrier bought a switch from a manufacturer, that manufacturer had a monopoly on hardware and software upgrades to the switch. This last factor, the fact that the owners of current switches are locked-in to their suppliers for hardware and software needed for growth and upgrades, creates incentives for the manufacturers not to lower the price of their traditional equipment. Klemperer and Varian provide excellent discussions of these incentives.^{7,8} Given these incentives, we should not expect to see the same decline in the cost of traditional switches as will be the case for new-technology switches.

2.3 ILEC and CLEC Network Architectures

Telephone outside plant—the wires, cables, conduits, and poles that carry the signals—and switches evolved together. But, as a telephone company's network became mature, the company could no longer easily trade off outside plant capabilities against switching capabilities. Rather, when the company needed a new switch to replace an existing switch, that new switch had to be compatible with the existing network of cable and wires—it would be inefficient and disruptive to replace or rework the outside wiring. Consequently, ILEC switches in urban areas tend to be in buildings that have held switches for many years, and the scale of the switches made for the ILECs reflects this pattern—an ILEC can use multiple switches, located in buildings where wires congregate, to serve

⁶ All modern switching equipment can connect to analog telephone instruments—either directly through a line card or indirectly through equipment containing a line card.

⁷ Paul Klemperer, "Competition when Consumers Have Switching Costs: An Overview with Application to Industrial Organization, Macroeconomics, and International Trade," *Review of Economic Studies*, Vol. 62, pp. 515-539 at 519. Note, in the context of this paper, the title of Professor Klemperer's paper may be confusing—in that title *switching costs* refers to the cost to consumers of changing suppliers, not to the costs of devices that connect and route telephone calls (telephone switches).

⁸ Hal Varian, Raffaele Mattioli Lecture, Bocconi University, Milano, Italy, on November 15-16, 2001, revised text of December 16, 2001.

an urban area. The switch manufacturers designed their switches to meet the ILECs' need for switches fitting their networks.

In contrast, CLEC networks can take advantage of the economies made possible by modern transmission capabilities. Rather than installing many switches in an urban area, CLECs install a single switch in a city or state and then haul the calls back to the switch for processing. Before the development of low-cost optical transmission systems, it was rarely economically feasible to carry telephone calls back to remote locations for switching. The growth of optical digital transmission, however, has changed this limitation. Currently, the signal from a modern digital loop carrier can be transmitted to a switch many miles away at relatively low cost. Similarly, modern communications permits the switching function to be fragmented, with equipment at the central office performing some functions and equipment at distant locations performing other functions.

Today CLEC networks are built with only a few switching nodes—one switch serves a city or an entire region. Correspondingly, the number of switches in the ILEC networks has been falling in recent years—the number of ILEC switches reported by the FCC in its annual report *Statistics of the Common Carriers* declined from 24,000 in 1995 to 18,000 in 2000.⁹ However, the size of the ILEC networks, the utility of existing plant, and the cost of rearrangement limit the rate at which ILECs can consolidate and combine switches. In fact, these restrictions minimize the opportunities for consolidation of ILEC switches. CLECs, on the other hand, are not constrained by these factors.

2.4 Modern Electronics Lowers Costs of CLECs' Next-Generation Switches

The continuing process of innovation in microelectronics has produced amazing products. Today's Intel Pentium 4 has more than 50 million transistors. A typical modern desktop computer has far more memory or processing power than a central office switching machine of a decade ago. Unfortunately, neither the hardware nor the software of a desktop system is anywhere as reliable as

⁹ FCC, *Statistics of Communications Common Carriers*, 1995 Table 2.10 and *Statistics of Communications Common Carriers*, 2000, Table 2.6. The ILECs had 7,978 full switches and 15,708 remotes in 1995 but only 6,429 full switches and 11,267 remotes at year end 2000.

the central office switch—so one cannot just load the software for a telephone switch into a new computer from Dell and have a telephone switch that costs \$800.¹⁰

At the same time that microelectronics have progressed, the computer industry has poured enormous resources into the development and perfection of various forms of data communications equipment to support networking both in the office and in the larger Internet. One consequence of this work on data communications has been the development of new technologies that compete with the traditional voice switching technologies and new firms that compete with the traditional suppliers of central office switches. For example, Cisco—a leading data networking firm—has sales roughly the same as those of Lucent or Nortel. Investor expectations for Cisco are more optimistic than for Lucent or Nortel—Cisco’s market valuation is more than three times that of Lucent and Nortel combined.¹¹ Cisco’s leading products are called switches and routers—these products are designed to switch data traffic rather than voice traffic.

Over the last few years, products and technologies from the data communications or the Internet world have begun to appear in the telephone switching market. One feature of the new designs is that the minimum efficient scale of a switching machine is much smaller than in the traditional telecommunications world. Industry uses a mix of terminology to describe these new devices—including terms such as softswitch, media gateway, and multiservice access switch. I refer to these as *new-technology switches*—but it is important to understand that no term perfectly describes this new category of switches. A key feature of many of the new-technology switches is that the program logic controlling call setup and call features (such as call forward on busy/don’t answer) runs on a general purpose computing platform—not on a special processor built only by the switch vendor. A second feature, seen in many new-technology switches, is that the voice signal is transferred using data communications technologies, such as Internet Protocol, Ethernet, or frame relay, rather than the traditional signal formats used in the telephone industry. The softswitch

¹⁰ There are other technical issues that make the use of a PC as a telephone switch problematic.

¹¹ Data taken from Yahoo Finance, February 19, 2002. Market capitalizations: Lucent \$18 billion, Nortel \$17.5 billion, and Cisco \$122.4 billion, ratio $[122.4/(18 + 17.5)] = 3.45$.

industry has created its own industry association—the International Softswitch Consortium—with more than 100 member firms.¹²

A recent study by John Malone of the Eastern Management Group (EMG) titled *Trends in Switching Prices, 1996—2002* reviewed these technological changes and concluded,

Since a voice oriented next generation Class 5 Switching System for CLECs is different than that required by ILECs, which must incorporate products into a legacy network, a CLEC's costs for switching are substantially less than that of an ILEC.

That Eastern Management Study is attached to this report as Appendix A. The following are some of its key points:

- **Technology Has Changed Since UNE Remand Order**

At the time the UNE Remand Order took effect (November 1999), integrated multiservice access platforms did not exist. Costly digital access cross connect systems (DACS), digital loop carriers (DLC), and frame relay switches had to be individually purchased by carriers to transmit customer data traffic. Recently, manufacturers have begun to develop and sell integrated multi-service access platforms (IMAP), also referred to as aggregators or converged switches. Since the UNE Remand Order, several new firms have developed Class 5 switch products.

- **Costs for CLECs Have Declined**

Since a voice oriented next generation Class 5 Switching System for CLECs is different than that required by ILECs, which must incorporate products into a legacy network, a CLEC's costs for switching are substantially less than that of an ILEC. Operating expenses for a Class 5 Switching System include personnel, power, air conditioning, and space. Next generation Class 5 Switching System operating expenses may be 75% less per year than those of legacy systems.

- **CLEC Network Architecture Has Evolved**

¹² For information, see their website at www.softswitch.org

Figure 1 below, taken from the Eastern Management Group study, shows the network architecture of a modern CLEC—using IMAPs for remote access, the concentration of traffic in each city, and high capacity backhaul to a switching system.

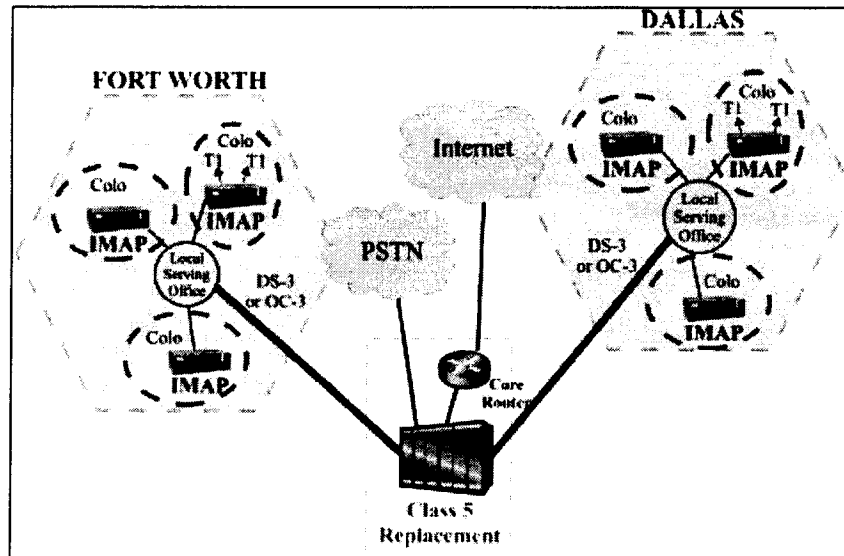


Figure 1. CLEC Network Architecture.

A filing by Taqua, Inc., a switch manufacturer, complements the EMG study.¹³ Taqua, a relatively young firm, manufactures a modular central office switch—the OCX. At its smallest configuration, the Taqua OCX supports only 80 access lines. But, the same box can support up to 100,000 subscribers in a single rack.¹⁴ Systems, such as the OCX, that are (1) designed for efficient operation even if connected to relatively few loops and (2) are manufactured using the most recent semiconductor and software technologies drastically reduce or eliminate the economies of scale in switching.

¹³ See Comments of Taqua, Inc., in CC Docket No. 01-338, CC Docket No. 96-98, and CC Docket No. 98-147, April 5, 2002.

¹⁴ Taqua filing at p. 5.

2.5 Service Providers

The changes in industry structure have created a new source of supply of telecommunications switching—vendors of switching services. A CLEC with a 5ESS switch can sell switching capacity to other CLECs—and, as I show below, some CLECs do so. Also, at least one ILEC continues to sell unbundled switching to CLECs in situations in which the FCC's UNE switching carve-out applies and market-priced switching rates are in the interconnection agreements pertinent to the ILEC and those CLECs.

2.6 Observations and Conclusions

CLECs and ILECs use switches to perform similar functions in their networks. ILECs, however, are constrained in their choice of switching technology by their legacy networks—whereas CLECs are not constrained in the same fashion. The cost of switches, especially switches based on packet switching technologies, continues to fall and the new technology switches are economically efficient at a smaller scale than the traditional switches. Furthermore, the current generation of traditional switches can serve telephone lines many hundreds of miles from the switch.

3 Hardware Solutions

In this section, I look at the supply of local switches in more detail. I consider first the suppliers of the traditional switches and then address the softswitch suppliers.

3.1 Traditional Switches

The industry that produces the traditional local switches used by most carriers in North America reflects the history of the telephone industry. The two major producers are Lucent and Nortel.

3.1.1 Lucent

Lucent's traditional local switch offering is formally known as the 5ESS but is often called the 5E. In recent years, Lucent has developed variations on the 5ESS design. One important variation is the remote unit that allows the capabilities of a 5ESS switch to be delivered using smaller modules located at distant locations from a host 5ESS system. Figure 2, taken from Lucent marketing literature, illustrates the concept.¹⁵

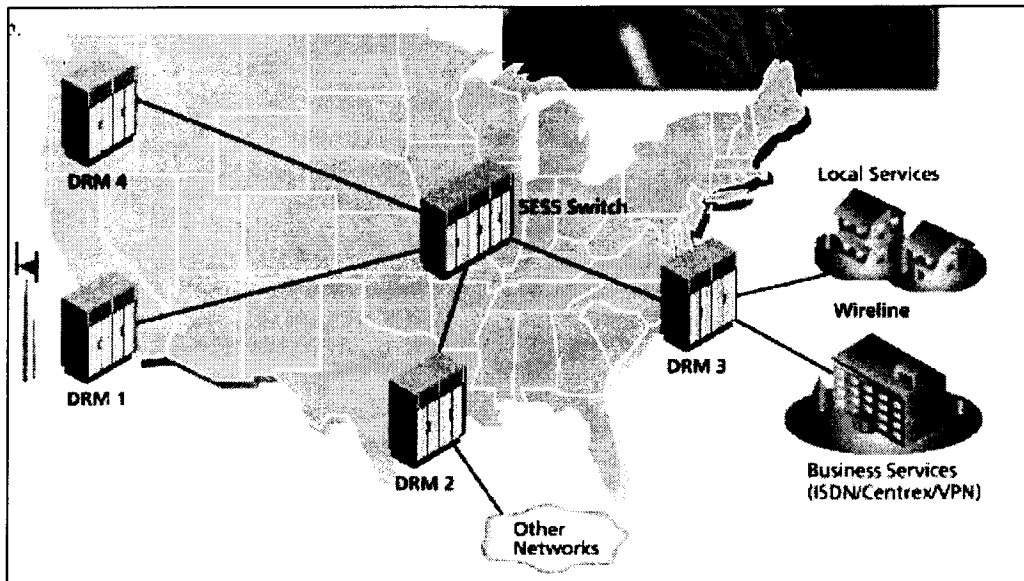


Figure 2. Lucent 5ESS Remote Capabilities

Lucent claims that the DRM remote unit illustrated here can be located up to 2,000 miles from the host 5ESS switch. CLECs use Lucent DRMs to provide service in cities hundreds of miles from their 5ESS. See, for example, the press release from Integra Telecom (a CLEC) at http://www.integratelecom.com/news/press/corp/091100_pr.shtml.

A second important variation on the traditional 5ESS design was the development of smaller versions of the 5ESS. One such smaller unit was the CDX (standing for compact digital exchange), now replaced by the VCDX (very compact digital exchange). Of course, the meaning of "very compact" depends on the context—a VCDX is 90 inches wide and about 7 feet tall. Lucent

¹⁵ Source, Distinctive Remote Module (DRM), Lucent, August 1999. 4 pages.

characterizes the VCDX as “the smallest configuration of the 5ESS family,” but a VCDX can support up to 28,000 telephone lines.

Nevertheless, the Lucent VCXD, together with the backhaul option discussed below, provides a more reasonable scale of entry (lower fixed cost but lower capacity) for CLECs than did the older 5ESS designs. Lucent says of its VCDX,

The VCDX provide the same dependable features of a full 5ESS® switch in a much smaller footprint, allowing your customers to offer the same broad array of services that a larger switch could offer. Ideal for residential, rural, and suburban markets, the VCDX is also fully scalable to a full 5ESS switch, letting your customers preserve their investment when their capacity demands increase.

Minimum Footprint

Compact size

Housed in three cabinets that are 6 feet high, 29.9 inches wide, and 23.6 inches deep

Ideal for locations with small-line-size applications

20,875 lines

25 Primary Rate Interfaces (PRIs)

4,080 Trunks.¹⁶

Lucent also manufactures several new-technology switching systems. I discuss those products below in the section on new-technology switches.

3.1.2 Nortel

Nortel's pioneering digital switch line, the DMS series, began shipping in 1980—two years ahead of Lucent's 5ESS. The early availability of the DMS product line, together with the changes in the U.S. telephone industry at divestiture, led to widespread use of the DMS switching products in the United States. The Nortel DMS product line encompasses a range of products—the DMS-10, DMS 100/200, DMS 250, and DMS-500. The DMS 100/200 is a traditional local switch; the DMS 10 is a

small local switch, somewhat comparable to the Lucent VCDX; the DMS 250 is a long-distance switch; and the DMS-500 is a combined local/long distance switch. Nortel promotes its DMS-10 to the CLEC market emphasizing the DMS-10's low initial cost and support for remote modules.¹⁷

The DMS family of switches supports remote units. The DMS remote units include a single cabinet version for start-up applications. Figure 3, taken from Nortel marketing materials, shows the size and capabilities of a standard DMS remote unit.¹⁸ These DMS remotes can be separated from the host switch by as much as 650 miles.

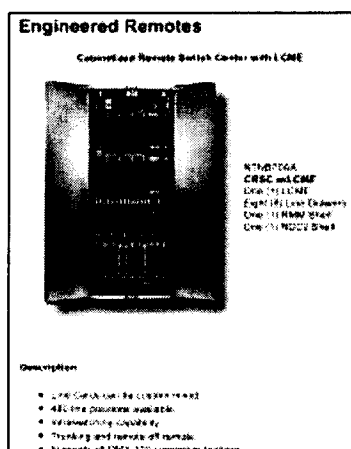


Figure 3. DMS Remote

3.1.3 Others

Lucent and Nortel are not the only switch manufacturers—Alcatel, Ericsson, Siemens, and NEC also manufacture local switches. However, relatively few of their switches have been installed in the networks of the LECs in the United States. In terms of competitive impact in the United States, these firms are more important as sources of proven knowledge and expertise on telecommunications switching—resources that can be used to support the development of new technology switches—rather than as suppliers of traditional switches.

¹⁶ <http://www.lucent.com.au/intl/au/en/products/solution/0,,CTID+2003-STID+10055-SOID+563-LOCL+1,00.html>

¹⁷ "DMS-10 CLEC Switching Solutions," Nortel Product Brief, May 1999.

¹⁸ <http://www.nortelnetworks.com/products/01/ndc/ntnb70.html>.

3.2 Remote Switching and Backhaul

Carriers use two methods to provide switching efficiently at distant locations. The first is to locate a small switching unit at the distant location. These switching units are called *remotes* or *remote switches*. Remotes depend on some of the capabilities of a *host switch* to provide the full spectrum of call processing capabilities. Above, I provided a description of some of the remote capabilities of the Lucent and Nortel switches.

The second method is simply to haul the calls from the remote location back to the switch; process the calls at the switch; and, if necessary, haul the traffic back to the original location for termination. Until recently, such backhaul would have been uneconomical in most circumstances. However, the cost of transmission over modern fiber optic facilities has fallen so low that backhaul can now be economical in many situations. In many cases, carriers haul traffic hundreds of miles to switches. Backhaul is not just a theoretical possibility but rather is a market reality.

In traditional backhaul, the standard voice signal (a 64,000 bit-per-second stream of bits) is carried over traditional telephone transmission facilities, such as DS-1 or OC-1 circuits. Of course, the backhaul need not be done over traditional telecommunications networks. Data communications technologies, such as networks based upon the Internet's IP protocol, can also be used to do the backhaul. For example, Lucent sells a product, the *iMerge* CFG, that provides such a backhaul capability over IP networks.¹⁹ Use of this box requires use of an access gateway to connect to analog phones.²⁰

¹⁹ The *iMerge* is manufactured by AG Communications Systems, a Lucent subsidiary.

²⁰ An access gateway converts the analog phone signal to an IP packet, and vice versa. Access gateways are made by many firms, including Lucent, Cisco, and Nortel.

Figure 4 shows the use of an *iMerge* box to extend the functions of a local switch to a remote access gateway.

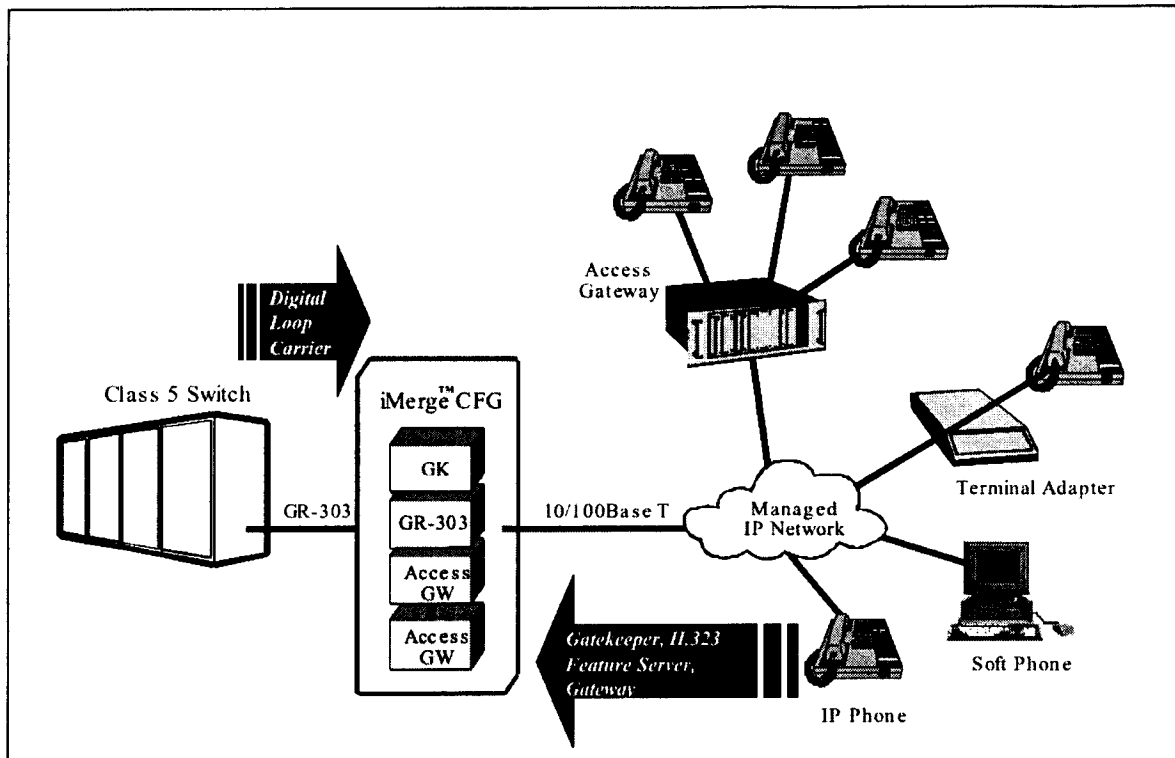


Figure 4. Lucent *iMerge* Remote Capability

Lucent is not the only firm that supplies a unit that permits traditional local switches to connect to remote loop terminations using an IP-based network—CopperCom, CableCom, General Bandwidth, Terayon, and others offer systems with similar capabilities.

3.3 New-Technology Voice Switches

Probably the most interesting switches for LECs are the switches built around data communications technologies. These systems can provide the same services as do traditional switches, but the new-technology switches do so in a quite different fashion. In traditional switches, a voice signal is represented as a stream of bits flowing at an even rate. The new-technology systems break a voice signal up into packets and send the packets over a packet-switching network—in same fashion that packets are used to carry web pages or radio broadcasts over the Internet.

The remote units described above illustrate one element of such network switching solutions. But, in those systems, the telephone calls are converted to packets at a gateway, carried back to a unit such as the Lucent iMerge over a packet network, converted by the IMerge box to a traditional telephone bit stream, and passed on to a traditional telephone switch for switching. But, of course, the middleman of the traditional switch is not necessary. The packetized voice signal could be sent over the data network directly to a second gateway connected to the telephone terminating the call or even to a telephone with built-in packet voice capabilities—an alternative sometimes called *pure IP telephony*.

Such a pure IP telephony arrangement might be useful inside an organization today, but most telephone calls must terminate on more traditional telephones—either analog wireline instruments or wireless phones. Thus, systems such as the iMerge and other forms of gateways between the analog telephones and the packet network will be needed for some time to come.

New-technology switches have been evolving over the last few years. One evolutionary path has been from telecommunications applications. Capability-limited, but low-cost switches, based on computers with cards that can connect the computer to T1 lines, were developed for applications such as international callback and office PBXs. Over time, the manufacturers have added additional capabilities, both hardware and software, to these systems. I believe that this path will ultimately turn out to be a dead end because of the likely success of the alternative approach described next.

A second evolutionary path grew from the Internet and data communications world. The original Arpanet/Internet researchers were always aware that telephone calls were one possible type of traffic that could go over the systems they were designing. The Department of Defense's Advanced Research Projects Agency (ARPA) sponsored research and experiments involving packet voice in the 1970s. Indeed, in 1978, Larry Roberts, now acknowledged as an Internet pioneer, wrote,

In short, packet switching seems ideally suited to both voice and data transmissions. The transition to packet switching for the public data network has taken a decade, and still is not complete; many PTT's and carriers have not accepted its viability. Given the huge fixed investment in voice equipment in place today, the transition to voice switching may be

considerably slower and more difficult. There is no way, however, to stop it from happening.²¹

Over the last few years, packet voice has moved from specialty market applications to moderately widespread use—widespread in the sense that there are millions of devices capable of generating packet voice installed, although not always carrying voice traffic. Packet voice, often called voice over internet protocol (VoIP), has become an object of intense research and product development. Last summer, the Office of Engineering and Technology (OET) sponsored a tutorial on this subject.²² The speaker at that tutorial, Niel Ransom of Alcatel, described three trends for VoIP—first, bypassing the traditional telephone network; second, replacing the traditional telephone network; and third, enabling new applications.²³

I believe that Roberts and Ransom are correct and that as VoIP and similar technologies evolve, they will supplant the traditional telephone network architecture.

3.4 New Technology Vendors and Products

The market for equipment capable of transmitting and switching voice over data networks is changing rapidly and is far from settled. Unlike the situation for traditional central office switches, there are dozens—perhaps hundreds—of suppliers fighting to define exactly what the products will be and to claim market share. A good discussion of the impact—or disruption as the author calls it—that the new technology switches will have on the switch manufacturing industry is given in Frank Ohrtman's master's thesis.²⁴ He identifies the “ability to scale down rather than up” to be “of great advantage in the converging market.”²⁵ A recent study for investors reached much the same conclusion, saying,

The deployments of Voice over Packet (VoP) technologies are quickly reaching an inflection point. The industry has moved from low-scale toll bypass deployments to large-scale competitive carrier deployments.

²¹ “The Evolution of Packet Switching,” by Lawrence G. Roberts, *Proceedings of the IEEE*, November 1978.

²² Available at <http://www.fcc.gov/oet/tutorial/tutorial.html>.

²³ Ransom tutorial, slide 14.

²⁴ Supra, note 1.

²⁵ Ibid, p. 42.

Within the next year, we expect to see large-scale deployment by incumbents worldwide.²⁶

A comprehensive survey of the new-technology switch market would be far too large for this paper. The International Softswitch Consortium lists 141 members on their website. Several of those, such as Time Warner Telecom and Verizon, are carriers but most appear to be equipment manufacturers.

Below, I briefly discuss a few new-technology switch suppliers that together illustrate the nature of the industry. These firms are:

- Cisco,
- Nortel and Lucent,
- Sonus, and
- Telcordia.

Cisco is the giant of computer networking, with 38,000 employees and sales of about \$20 billion per year. Cisco sells several products that permit voice communications over data networks including telephone instruments, gateways that convert analog voice signals into data packets, systems for controlling telephone call setup over data networks, and its traditional data switching and routing products.

Nortel has developed a softswitch that it offers as an alternative to its traditional switches. Qwest has used the Nortel switch to carry live ILEC traffic.²⁷

Lucent's strength in the telecommunications industry is, of course, its traditional switching product line the 5ESS. However, Lucent also has a variety of new-technology voice communications products. To build its expertise in this area, Lucent acquired Ascend and Excel, two firms in the

²⁶ See "The Metamorphosis of the Telephony Network," by Michael R. Brown and Stephanie Roscoe, RBC Capital Markets, December 10, 2001, at p. 1.

²⁷ See, "Nortel Networks Deploying Voice, Data Network for Qwest Using Internet Technology—Qwest First Local Carrier to Serve Customers Using Voice Over Packet Network Architecture," Nortel press release, October 11, 2001.

new-technology switch industry. The Ascend EXS switch is now the Lucent EXS switch. Lucent states,

Lucent's new EXS® Converged Services Platform is an “any-gen” platform designed to seamlessly and cost-effectively bridge the gap between revenue-generating network services in today's Public Switched Telephone Network (PSTN) environment and packet-based network solutions of the future. From unified messaging and automatic speech recognition to web-initiated voice services and voice portal solutions, the EXS® Converged Services Platform is the ideal solution for your carrier-class needs.²⁸

Previously, I described Lucent's iMerge product that extends the reach of a traditional switch over a data network.

Lucent is a significant competitor in the new-technology voice systems marketplace. Figure 5—taken from a recent Lucent presentation to investors—shows Lucent with the largest market share for universal port cards (cards that are installed in devices such as the EXS and that can support either telephone or data dial in—that is, they combine a voice digitizing function with a modem function).²⁹

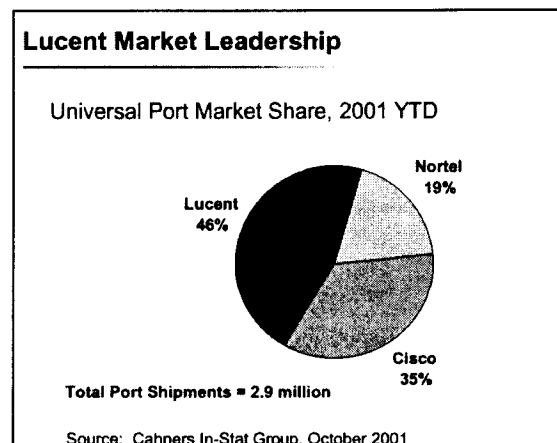


Figure 5. Universal Port Sales in 2001

²⁸ <http://www.lucent.com/products/solution/0,,CTID+2002-STID+10153-SOID+1022-LOCL+1,00.html>

²⁹ Presentation by Joe Sigrist, Lucent, “Voice-over-Packet Solutions,” CSFB Annual Technology Conference, November 2001, slide 15.

With respect to market share, Sonus lies at the opposite pole from Lucent. Sonus was founded in late 1998 and had its initial public offering at the end of May 2000. Yahoo reports that a diverse range of carriers, including BellSouth, Time Warner Telecom, Level 3, Touch America (Montana Power), Qwest, China Netcom, and Fusion Communications Corporation (Japan), use Sonus switches in their networks.³⁰ Sonus's newest product is the Insignus Softswitch. Sonus emphasizes that their product can be economically used for small installations. They claim:

Seamless Scalability

The Insignus Softswitch can scale from the smallest single Point of Presence (POP) to the largest global configuration. The Insignus Softswitch and appropriate gateways can be deployed as a one-rack next-generation local switch. However, each module can also work with multiple gateways or other softswitch elements, allowing you to optimize network operation by sharing resources.³¹

Telcordia (formerly Bellcore) is not a hardware manufacturer but is a major provider of software for ILECs. Telcordia has developed a software package for new-technology switching (Telcordia calls its product *Call Agent*) and Telcordia sells that software package to both carriers and equipment suppliers.

Like the other vendors, Telcordia makes strong claims for its product:

The Call Agent's features make it the most advanced softswitch in the industry.

The Call Agent provides primary line VoIP without the need for a Class 5 circuit switch. The Call Agent is a "softswitch" that works with our associate-provided IP or ATM gateways to perform call control functions and deliver revenue-generating services running over IP and ATM networks. In addition, the Call Agent is based on an open architecture that eliminates dependence on switch suppliers for new products, services, and proprietary software upgrades. Telcordia has engineered the Call Agent to include:

CLASS(sm) Features - revenue-driving services such as Call Waiting, Caller ID, and Call Forwarding

³⁰ <http://yahoo.marketguide.com>, checked February 26, 2002.

³¹ "Insignus™ Softswitch An Open Services Architecture™ Component," Sonus Corporation brochure, 4 pages, 2002.

Regulatory Features - all the features necessary to become a licensed carrier, including 411, 911, Wiretap/Calea, and Telecommunications Relay Service (TRS)

Platform Features - features that support 24x7 operation of the Call Agent, including live system retrofits, live system growth, and overload detection (e.g., guaranteed 911 service); the Call Agent handles network congestion situations both with Automatic Congestion Control (ACC) procedures and alternate routing when trunk groups no longer have available trunks

Telcordia™ Accounting Gateway - a billing interface that converts IP billing records to the Automatic Message Accounting (AMA) format

Telcordia™ Announcement Server - a server that routes network announcements (e.g., "the phone line has been disconnected") to specified destinations

Highly Available Platform - the ability to run on commercially available computing platforms with an "n+1" redundancy scheme; it allows the Call Agent to handle thousands of simultaneous calls without ever going down

Scalability - the Call Agent brings next-generation call management to both small and large, single-site configurations as well as configurations that link Call Agent sites to networks of unlimited size

Network-Independent Architecture - its open architecture allows the Call Agent to function over virtually all access mediums and networks, including copper pair, fiber, Hybrid Fiber Coax (HFC), and IP and ATM networks.³²

Telcordia's Call Agent runs on Sun computers, and Telcordia claims that Call Agent was the first product in its class to switch live traffic. Telcordia also states that Call Agent is being used by both cable companies and CLECs.³³

4 Service Provider Solutions

Another important alternative supply of switching for LECs is to buy switching services from other carriers. As described previously, modern switches are flexible systems that can economically provide switching services to locations many hundreds of miles away. Thus, a carrier with a switch

³² http://www.telcordia.com/products_services/networksystems/softswitch/description.html

³³ http://www.telcordia.com/products_services/networksystems/softswitch/references.html

in Miami could provide switching services for a start-up carrier in Orlando as well as to other providers in Miami.

In fact, carriers do buy and sell switching services as a normal part of doing business. Some CLECs advertise that they offer wholesale services. For example, Grande Communications in Texas offers wholesale CLEC services. The table below, taken from their website, shows how Grande Communications promotes its wholesale services.³⁴

WHOLESALE CLEC

Grande Networks provides telephony services that enable CLECs to compete against local telephone providers.

Our core service consists of the following components:

- Local Dial Tone and Long Distance Service
- 911 Database Update
- Telephone Number Assignment
- Local Number Portability
- Local Telephone Features
- Directory Listing Services
- Calling Card
- National Directory Assistance .

Grande Communications website also contains a map showing the location of their switching centers—reproduced below as Figure 6.

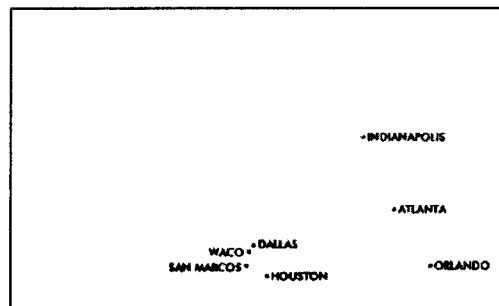


Figure 6. Grande Communications National Switching Network

Grande offers switching services to other carriers in Atlanta from the Grande switch in Atlanta—indeed, the Grande switch in Atlanta can provide service to carriers throughout the state of Georgia

and probably to some of the carriers in adjacent states. Grande says, "Grande's wholesale service division, Grande Networks, serves the integrated communications needs of other service providers and carriers by providing the underlying network products, services and professional support staff for carriers, ISPs, CLECs, VoIPs, ESPs and ASPs through Grande's ATM, voice and data switching platforms and SONET/fiber networks."³⁵

KMCTelecom, also a CLEC, promotes its offering of port wholesale services that they call ClearPort.³⁶ KMCTelecom claims to actively market to CLECs.³⁷

CLECs also actively search for wholesale switching suppliers. For example, the following message appeared on an Internet mailing list:

I have a cable client with about 80,000 subs in various locations, with plant already largely configured for 2-way service that wants to explore using that plant as telephone loop plant. They are already doing this in at least one location so they know that it technically works.

However, they don't want to buy their own switches for their various systems if they don't have to; instead, it seems to them (and to me) that a CLEC with a switch that has excess capacity should be interested in selling some of that capacity to my cable op client.

States of particular interest: Georgia Alabama Florida Tennessee Louisiana Texas Oklahoma Wyoming

Any CLECs out there who might want to make a few bucks on the side selling switching capacity, respond privately to me at <<address omitted>>³⁸

Carrier hotels provide more evidence of such sales of switching capacity. Carrier hotels are locations where many carriers have located their switching and transmission facilities—thus permitting easy interconnection. Probably the most well-known carrier hotel in the industry is 60 Hudson Street in New York City—formerly the site of Western Union's headquarters. Switch and

³⁴ Source: http://www.grandecom.com/ProductsServices/wholesale_clec.jsp.

³⁵ "Grande Communications Receives Franchises to Offer Bundled Internet, Phone and Cable Services in Four New Central Texas Cities," press release, Grande Communications, Austin, TX, November 29, 2001.

http://www.grandecom.com/About/pressroom_release.jsp?PR_ID=PR215.

³⁶ See <http://www.kmctelecom.com/services/carrierhotel.cfm>.

³⁷ See http://www.kmctelecom.com/investor/MSDW_files/frame.htm, slide 14.

Data, a firm in that market, actively promotes the benefits of capacity sales among the carriers located in its space, saying,

As Switch and Data's locations populate, a marketplace forms that yields an instant synergy. We encourage business-to-business within our sites, and by assuring our customers that we won't compete with them, this marketplace becomes an important reason to do business with Switch and Data.³⁹

According to BellSouth, CLECs continue to purchase unbundled switching when serving customers that meet the current FCC UNE switching carve-out criteria—evidence of a wholesale market for ILEC switching at market (i.e., not TELRIC) prices.

5 eBay

And, as with most other products, eBay is also a possible source. More generally, the used equipment market can supply products needed by a firm interested in small-scale entry. Below are two pages that I took off of eBay. The first is for a traditional Nortel DMS switch—which had not received any bids at the time I downloaded the page. The second is for a Cisco gateway device that can be used to connect analog telephones to an IP network. Not only is the Cisco unit cheaper and capable of supporting far fewer lines, but bidding has passed any reserve price.

³⁸ <http://lists.robotics.net/archives/cleclist/1999-July/000445.html>

³⁹ <http://www.switchanddata.com/products/marketplace.html>

eBay item 1704835831 (ends Feb-19-02 12:30:12 PST) -> NORTEL DMS-500 SWITCH Page 1 of 5

home | my eBay | site map | sign in

Browse Sell Services Search & Help Community

Item view

NORTEL DMS-500 SWITCH
Item # 1704835831

Business, Office & Industrial Telephones Systems



 Currency: **\$100,000.00** (USD) First bid: **\$100,000.00**
 Quantity: **1** # of bids: **0** bid history
 Time left: **2 days, 3 hours +** Location: **Nashville, TN**
 Country/Region: **USA/Nashville**
 Started: Feb-12-02 12:30:12 PST Add this auction to a friend
 Ends: Feb-19-02 12:30:12 PST Watch this item
 Seller (Rating): **willhagen (28)** ☆ ☆
 view comments in seller's Feedback Profile | view seller's other auctions | ask seller a question
 High bid: **—**
 Payment: **Store credit & money orders** Other: See item description for payment methods accepted
 Shipping: **Buyer pays actual shipping charges** Seller ships internationally (see item description for shipping charges)

Figure 7. eBay auction of Nortel DMS 500.

home | my eBay | site map | sign out

Browse Sell Services Search & Help Community

Item view

CISCO AS5300 UNIVERSAL ACCESS SERVER ***NR**
Item # 2005335356

Computers/Networking & IT/Router, Switches, Cisco



 Currency: **\$2,551.00** First bid: **\$0.99**
 Quantity: **1** # of bids: **5** bid history
 Time left: **5 days, 10 hours +** Location: **midwest**
 Country: **USA**
 Started: Feb-21-02 20:30:41 PST Add this auction to a friend
 Ends: Mar-02-02 20:30:41 PST Watch this item | view watching details
 Seller (Rating): **lp89605 (1732)** ☆
 view comments in seller's Feedback Profile | view seller's other auctions | ask seller a question
 High bid: **runningfirst (56)** ☆
 Payment: **Money order, cash & money orders** Other: See item description for payment methods accepted
 Shipping: **Buyer pays actual shipping charges** Will ship to: United States only. See item description for other restrictions

Figure 8. Cisco Gateway on eBay

These eBay examples are offered slightly tongue-in-cheek. But, the eBay offerings demonstrate an important truth: as wireless usage expands and other local alternatives substitute for traditional telephone lines, the ILECs will see a decline in the number of access lines they sell. In fact, ILECs

have already begun to report such declines. The Common Carrier Bureau's Industry Analysis Division reported that the number of ILEC switched access lines went from 179.8 million in June 2000 to 174.5 million in June 2001—a decline of 5.3 million lines. This decline frees up equipment, such as line-cards and other switch subassemblies, which the ILEC can resell. Of course, such sales by the ILECs will put downward pressure on the price of switching equipment generally, including the switching equipment available to CLECs.

6 Switching in Context

The 1996 Act requires the FCC to consider whether requesting carriers would be impaired without access to a particular network element. The FCC's UNE Remand Order set forth five criteria that the FCC would consider in determining that lack of access to a network element would impair a CLEC—cost, ubiquity, quality, timeliness, and operational impediments.⁴⁰ Without conceding that these criteria are properly employed in the impairment analysis, it is clear that, even if they are, CLECs are not impaired without unbundled access to ILEC switching.

Cost—both new-technology switches and backhaul arrangements are cost effective.

Ubiquity—backhaul is a ubiquitous option in the contiguous 48 states. Furthermore, the smaller minimum efficient scale of new-technology switches and the separation of switch functions in new-technology switches between gateway functions and call control functions also make a ubiquitous presence easier to achieve.

Timeliness—historically, the lead time for procurement of traditional switches has been fairly long. However, the lead time for backhaul arrangements should be short and the smaller, new-technology switches can be deployed quickly. Thus, timeliness should not be an issue with the alternatives to ILEC switching.

⁴⁰ In the Matter of Implementation of the Local Competition Provisions of the Telecommunications Act of 1996, Third Report and Order and Fourth Further Notice of Proposed Rulemaking in CC Docket 96-98, FCC 99-238, at para. 23.

Quality—backhaul to traditional switches will provide the same service features as those switches have always provided. The fact that established ILECs, such as Qwest, use new-technology switches to carry live traffic shows that such switches provide quality equivalent to that of traditional ILEC switches.⁴¹

Operational Impediments—using a switch owned and controlled by the CLEC would provide better operational control and flexibility. Such a switch can be integrated into the CLEC's operations support systems. The CLEC can reconfigure and upgrade such a switch on its own timetable.

In summary, examining the backhaul and new-technology switch options for CLECs in the context of the FCC's five criteria for impairment demonstrates that these two technological options meet the criteria. Further, the other alternatives that I have discussed, that is, the purchase of switching at market prices from ILECs or other CLECs, appear to meet all five of the FCC's aforementioned criteria based on the fact that some CLECs have elected to utilize these options in the provision of service to their customers.

7 Conclusions

CLECs have multiple alternative sources of supply for switching. Those alternatives are affordable, are available, and have the necessary technical features. These alternatives are not theoretical. CLECs are using both the old-technology and the new-technology switches. CLECs buy switching capacity from ILECs and from other CLECs.

Two important factors that expanded the supply of switching alternatives to CLECs are (1) the availability of switches with small minimum efficient scale and (2) the economic and technical feasibility of backhaul. A key feature of the new-technology switches is that they have been packaged for smaller scale firms—they are economically efficient at far smaller line counts than are

⁴¹ Indeed, unbundled access to an ILEC switch might well be access to a new-technology switch.

the old-technology switches. Backhaul and remote switching capabilities allow a switch to provide service in cities hundreds of miles away.

Given these facts, access to unbundled switching elements is not necessary to the operation of any CLEC with a reasonable business plan. Considering CLEC access to switching in the context of the FCC's five criteria for impairment—cost, ubiquity, quality, timeliness, and operational impediments—it is clear that the CLECs would not be impaired by being required to purchase switching in the marketplace.⁴² The wireless and competitive long-distance industry did not have access to unbundled switching, but they grew relatively rapidly.

⁴² There is one possible exception to this conclusion: fiber networks do not extend everywhere, and my analysis may not apply as strongly outside the 48 contiguous states. Conditions in Alaska and some of the more isolated islands within the FCC's jurisdiction may be sufficiently different that backhaul is uneconomic, and thus, the support for my conclusion would be weaker in those situations.

Appendix A:

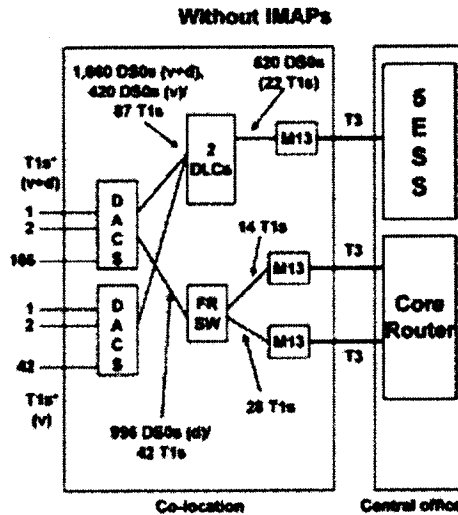
Eastern Management Group Study

Trends in Switching Prices,
1996—2002

Technology Has Changed Since UNE Remand Order

At the time the UNE Remand Order took effect (November 1999), integrated multi service access platforms did not exist. Costly digital access cross connect systems (DACS), digital loop carriers (DLC) and frame relay switches had to be individually purchased by carriers to transmit customer data traffic.

Figure 1: CLEC Network Architecture Before UNE Remand Order



Recently, manufacturers have begun to develop and sell integrated multi service access platforms (IMAP), also referred to as aggregators or converged switches. IMAPs concentrate the functions of DACS, DLS and frame relay switches into a single device. Some IMAP manufacturers are listed below.

Table 1: IMAP Manufacturers

Manufacturer	Founded
Advanced Fiber Communications	1992
Mainsail Communications	1998
Occam Networks	1999
Vina Technologies	1997
Zhone Technologies	1999

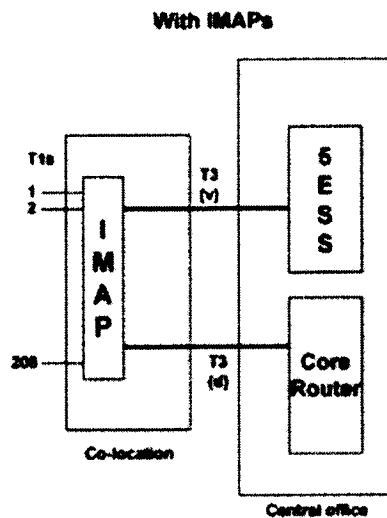
Since the UNE Remand Order, several Class 5 switch manufacturers have developed products. Some of these companies are identified in Table 2.

Table 2: Class 5 Switching System Manufacturers

Manufacturer	Founded
Gluon Networks	1999
Santera Systems	1998
Taqua Systems	1998
Telica	1998

Traffic from IMAPs is transmitted using high-speed communications links to a Class 5 Switching System.

Figure 2: CLEC Network Architecture Today



Since a voice oriented next generation Class 5 Switching System for CLECs is different than that required by ILECs, which must incorporate products into a legacy network, a CLECs' costs for switching are substantially less than that of an ILEC.

Table 3: Cost Comparison Next Generation Versus Legacy Class 5 Switching Systems¹

	Next Generation Voice Oriented Switch	Legacy Switch
Initial Price	\$100 Thousand	\$1 Million
Price Per Port	\$75	\$250
Operating Expense	Low	High

Operating expenses for a Class 5 Switching System include personnel, power, air conditioning and space. Next generation Class 5 Switching System operating expenses may be 75% /year less than legacy.

Many residential customers as well as some small businesses have little requirement for data communications. As such, an inexpensive voice oriented Class 5 Switching System such as the example in Table 3 can meet the CLECs needs. However many CLECs have a mix of customers with many requiring extensive voice and data communications support. Before the UNE Remand Order, a CLEC would purchase frame relay switches, digital access cross connect systems (DACS), and digital loop carriers (DLC) to handle customers' voice and data traffic.

Recently, since the UNE Remand Order, manufacturers have begun to develop and sell integrated multi service access platforms (IMAP), also referred to as aggregators or converged switches. IMAPs concentrate the functions of DACS, DLC and frame switches into a single device. Voice and data traffic from an IMAP moves on to the Class 5 Switching System. IMAPs are small and require little space. They are scaleable, so a large up-front investment is not required by the CLEC.

Table 4: Typical IMAP²

Capacity	96 T-1 or 2304 DSO equivalents
Cost	\$30 Thousand

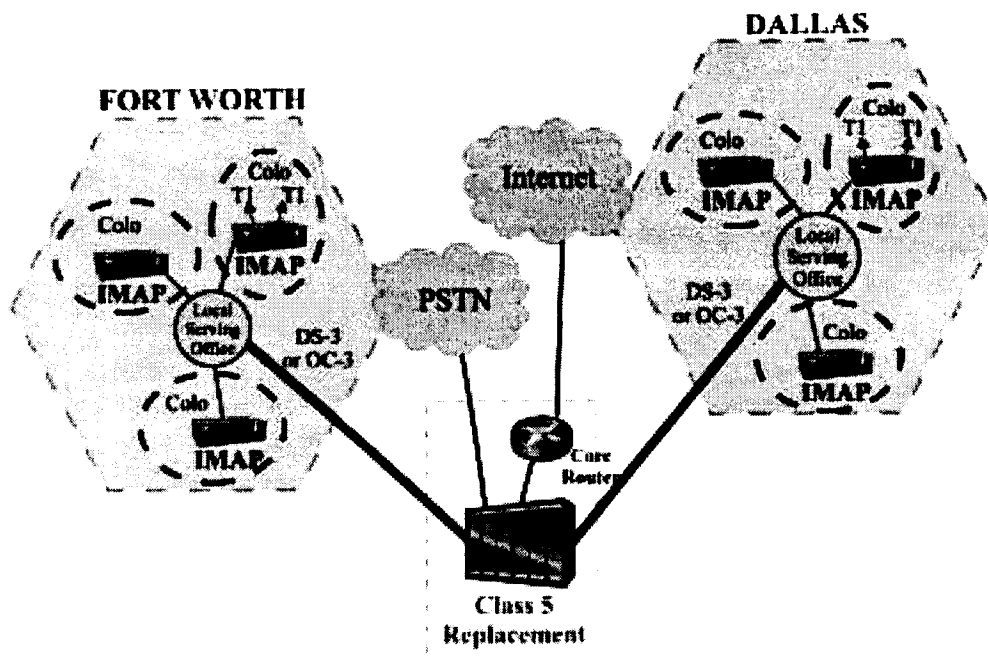
Voice as well as data traffic switched through IMAPs can be back hauled over broadband facilities to a Class 5 Switching System, reducing the number of Class 5 Switching Systems that a CLEC must purchase as the business builds-out its network. Figure 3 depicts a CLEC network employing just one Class 5 Switching System while serving 1200 customers with voice and data communication requirements in two Texas cities, Dallas and Fort Worth.

¹ Source: Taqua Systems

² Source: Vina Technologies

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Figure 3: Constructing a Multiple City Network Using Just 1 Class 5 Switching System



For the network depicted in Figure 3 we have priced out the CLEC investment for sufficient IMAPs and a Class 5 Switching System to serve 1200 customers, served by T-1 lines. Information relating to the network as well as the capital expenditure cost is shown in Table 5

Table 5: Capital Expenditure For A Two-City Network³

Customers Served	1200 via T-1 or 29,000 DSO equivalents
IMAPs	20 at \$30 Thousand each
Class 5 Switching System	1 at \$700 Thousand
Total Investment IMAP and Class 5 Switching System	\$1.3 Million

³ Source: Taqua Systems and Vina Technologies
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BELLSOUTH APPENDIX

TAB 15

DOCKET NO. 030851-TP

In the Matter of:

IMPLEMENTATION OF REQUIREMENTS
ARISING FROM FEDERAL COMMUNICATIONS
COMMISSION'S TRIENNIAL UNE REVIEW:
LOCAL CIRCUIT SWITCHING FOR MASS
MARKET CUSTOMERS.

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THE OFFICIAL TRANSCRIPT OF THE HEARING,
THE .PDF VERSION INCLUDES PREFILED TESTIMONY.

TELEPHONIC
DEPOSITION OF: MARK D. VAN DE WATER

TAKEN AT THE
INSTANCE OF: The Staff of the Florida
 Public Service Commission

PLACE: Gerald L. Gunter Building
Room 362
2540 Shumard Oak Boulevard
Tallahassee, Florida

TIME: Commenced at 3:00 p.m.
Concluded at 7:26 p.m.

DATE: Wednesday, February 11, 2004

REPORTED BY: TRICIA DeMARTE, RPR
Official FPSC Reporter
(850) 413-6736

1 third-parties, CLEC collaborations, things along those lines,
2 what do you see?

3 A I see collaborations between the CLECs and BellSouth
4 to come up with the best process that can be done with the OSS
5 available. I see testing by third parties that can then --
6 actually, under order of the Commission I think would be
7 better, not just random testing, but Commission-ordered
8 testing, nothing to the extent I understand that there was in
9 Florida some years ago with OSS, but nonetheless, something
10 that tested the process enough so the CLECs are comfortable
11 that they can move customers when they choose to and it's
12 economically and operationally better for them to do so.

13 Q All right. I just have a few more questions. Going
14 to your surrebuttal now.

15 A Okay.

16 Q On Page 3, Lines 12 through 16, you state that AT&T
17 is requesting that the Commission initiate another proceeding
18 to determine whether ELP would eliminate impairment. Would
19 AT&T possibly petition the Commission for such a proceeding if
20 not ordered by this Commission?

21 A I don't know.

22 Q Okay. Switching gears. Have you had the opportunity
23 to read Ainsworth's surrebuttal?

24 A Yes, I have.

25 Q On Page 2 -- and just holler when you get to

BELLSOUTH APPENDIX

TAB 16


[Cbeeyond for Your Business](#)
[Services](#)
[Partners](#)
[About Cbeeyond](#)
[Contact Us](#)

Our Technology

Cbeeyond VoIP Technology

The world's first 100% Voice over Internet Protocol (VoIP) Local Telephone Company

Cbeeyond Communications is the leader in the emerging VoIP and broadband Internet services market and the first service provider to build a pure Voice over Internet Protocol (VoIP) local telephone company.

We use a **private** IP network and softswitch technology to deliver high quality, affordable communications services. We are a peer to the local phone company and support the primary line telephone services: E911, operator services, line features such as Call Waiting, Caller ID with Name, Three-Way Calling, Call Forward, etc. And unlike many VoIP companies who use the Public Internet to transport voice calls, where quality is "best efforts" and highly dependent on their broadband Internet connection, **voice calls with Cbeeyond travel over a dedicated IP connection and never touch the Public Internet**; allowing Cbeeyond to manage the Quality of Service and achieve 99.999% availability.

[Learn more about our network](#)

Here is how it works: At each of our customer locations, we install and manage a Cisco Integrated Access Device (a router about the size of a pizza box), which connects to both a customer's existing phone system and LAN. We send our IP traffic across our private Cisco-based backbone network, while handing off Internet data to our Internet service provider partners and phone calls to the Public Service Telephone Network (PSTN). No voice traffic ever goes over the Internet.

[Networking Made Easy](#)

Our VoIP network is more efficient than the old way of delivering voice and Internet services. To provide a bundled offering, traditional telecom service providers had to bring together two different networks to deliver their communication services - one for voice traffic, another for Internet traffic. But with our VoIP network, we're able to provide both voice and data traffic over the same network which allows us to dramatically reduce what it costs for us to provide these services and create a higher level of customer service. Our single network with one source of data and advanced operating support systems translates to faster and smoother installations; one number to call for support and online account management tools which put the power of moves, adds and changes into our customers hands - and at their convenience.

[Typical bundled services versus Cbeeyond Integrated Voice and Data Services](#)

Our VoIP network also improves Internet performance for our customers by maximizing their bandwidth. The old way of providing services set a certain amount of bandwidth for voice traffic, and a certain amount for data traffic. When phone lines aren't in use, all of the bandwidth reserved for voice is just sitting idle. But with Cbeeyond's network, since voice and data travel over the same path, when voice lines aren't in use, the full T-1 connection is used for data transfer. We call this Dynamic Allocation of Bandwidth, and it means that our customers always get the fastest Internet connection possible.

[Overview](#)
[Management Team](#)
[Board of Directors](#)
[Our Story](#)
[Our Technology](#)
[Network Overview](#)
[VoIP](#)
[Whitepapers](#)
[Investors](#)
[News](#)
[Careers](#)

[Dynamic Allocation diagram](#)

But the benefits of our network technology don't stop there. By creating a network that talks the same language as the Internet (even for voice traffic) we'll be able to deliver future business tools, software and Internet advances over our network directly to our customers. So they can feel confident that our technology will not become obsolete in a few years, but rather will be the foundation for future advances for their growing businesses.

[Cbeyond Whitepapers](#)



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Overview

Management Team

Board of Directors

Our Story

Our Technology

[Network Overview](#)

[VoIP](#)
[Created by PixelMEDIA](#)
[Whitepapers](#)

Investors

News

Careers

BELLSOUTH APPENDIX

TAB 17



The Network Advantage

Coverage you
can count on.



Ways to Buy

- Find a [Sprint Store](#)
- Call us at 1-888-253-1315
- [Shop online](#)

Shopping Guide

[Questions to ask](#) when
comparing carriers.

Wireless service is only as good as the network it runs on. At Sprint, we built ours from the ground up and made it the most complete, all-digital wireless network in the nation.

Why is this important? Because other wireless networks use a patchwork of different systems trying to work together, which can result in inconsistent service. With Sprint, all your voice and data services work the same wherever you go on our network.

Today, the enhanced Sprint Nationwide PCS Network connects more than 240 million people. Over 20,000 individual cell sites across America ensure that your signal gets through. By the end of 2004, another 2,000 new cell sites will have been added, which means even more capacity for fewer dropped calls and faster data transfer.

Simply put, Sprint has you covered. It's a promise you can depend on.

Do you currently have service with another wireless carrier? Find out how easy it is to [Switch to Sprint](#) and bring your number with you.

Network Facts:

- Services work the same wherever you go on our network
- Over 20,000 cell sites in service
- 2,000 new cell sites planned for 2004
- 100% Sprint owned and operated
- Continually increasing network capacity
- Ongoing network enhancements

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© 2004 Sprint. All rights reserved. | [Security & Privacy](#) | [Terms & Conditions](#)



Sprint.com | Personal | Business

About Sprint

Media

Investors

Analysts & Consultants

Values

Sponsorships

Sprint Moves Forward with Portfolio of Local, Long-distance and Nationwide Wireless Bundles; FCC UNE-P Order Encourages Expansion of Successful Sprint Trials

Sprint demonstrates position as a leading integrated communications provider by offering coast-to-coast, unlimited local, nationwide long-distance and wireless bundle

For more information, or to order Sprint Complete Sense, click [here](#).

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Leslie.j.letts@mail.sprint.com

Nancy Sherrer, 913-794-2942
Nsherr02@mail.sprintpcs.com

OVERLAND PARK, KS — August 27, 2003

Sprint (NYSE: FON, PCS) has reaffirmed its position as a leading integrated communications provider by offering Sprint Complete SenseSM, a portfolio of calling bundles. This is in direct response to the recent FCC order on UNE-P, which more clearly established the parameters for new local competition in mass markets and, in turn, brings more value to consumers. Sprint Complete Sense products utilize the Unbundled Network Elements Platform (UNE-P) along with the company's existing long-distance and nationwide wireless networks to offer customers the simplicity of a single provider.

"The recent FCC order paves the way for long-awaited competition and choice for local telephone service, and Sprint is responding with a portfolio of new bundles," said Len Lauer, president of the PCS Division of Sprint. "With Sprint Complete Sense UnlimitedSM with PCS, one of the new calling bundles from Sprint, customers no longer need to think about where, when or which phone to use to make a call anytime of the day or day of the week."

The portfolio consists of four bundled calling plans – including an unlimited local, domestic long-distance and wireless bundle called Sprint Complete Sense Unlimited with PCS that is the only one of its kind.

"The company already possesses institutional expertise as an integrated telecommunications company. Sprint has a strong consumer brand, nationwide distribution channels, wireless and wireline network assets and the financial stability required to expand its integrated product offerings," said Howard Janzen, president of Sprint's Global Markets Group. "Sprint has long served as a leader in the field of bundling and has set the bar on selling multiple products into a customer base. Currently, nearly 50 percent of our local customers and more than 20 percent of our wireless customers also use Sprint long-distance service."

The company's expertise in packaging multiple products into a simple, single bundle and its strong nationwide long-distance and wireless networks uniquely position Sprint in the communications industry to offer combined calling plans coast-to-coast. Sprint operates the largest all-digital, all-PCS nationwide wireless network and built the only fiber-optic network from the ground up for nationwide long-distance calling from your home. The Sprint Complete Sense portfolio of bundled products will be offered to approximately 80 percent of U.S. households in selected markets in 36 states and the District of Columbia. This complements the other bundled offers already available to approximately five percent of the country through the Local Telephone Division of Sprint.

"Sprint's portfolio of assets provides the ability to package the most valuable services requested by our customers," said Lauer. "The Sprint Complete Sense product line is unique in that it offers customers several service packages – including an unlimited wireless option. And, Sprint has the most efficient and economic means to reach customers coast-to-coast through traditional online and call center sales, as well as through our strong marketing partners, hundreds of Sprint Stores and potentially third-party retailers."

The Sprint Complete Sense portfolio offers customers four choices to meet various calling needs at prices from \$44.99 for unlimited local calling and a block of long-distance minutes to \$189.99 for a complete package of unlimited local, nationwide long-distance and unlimited wireless calls. Additionally, discounted international per-minute rates are available for a small monthly fee. Customers can check to see if they are eligible for Sprint Complete Sense products by

calling 1-800-PIN-DROP, visiting a Sprint Store or visiting www.sprint.com.

Because of the assets Sprint possesses, the company is uniquely positioned to enhance its product portfolio with integrated wireline and wireless features. Sprint also plans to offer small business customers a portfolio of voice bundles this fall.

For more information, or to order Sprint Complete Sense, click [here](#).

About Sprint

Sprint is a global integrated communications provider serving more than 26 million customers in over 100 countries. With more than \$26 billion in annual revenues in 2003, Sprint is widely recognized for developing, engineering and deploying state-of-the-art network technologies, including the United States' first nationwide all-digital, fiber-optic network and an award-winning Tier 1 Internet backbone. Sprint provides local communications services in 39 states and the District of Columbia and operates the largest 100-percent digital, nationwide PCS wireless network in the United States. For more information, visit www.sprint.com.

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BELLSOUTH APPENDIX

TAB 18

T-Mobile USA : No location selected (change location)



Ask T-Mobile:

>> Ask T-Mobile tips

Personal

<< Explore Business pages

Products

Plans

Coverage

Services & Features

Support

My T-

About our company



- About our company
- >> Quick facts
- >> Meet Catherine Zeta-Jones
- >> About our technology
- >> Safety information
- >> TTY Policy Overview

U.S. Operations of T-Mobile Company Overview

Based in Bellevue, Washington, the U.S. operations of T-Mobile International AG & Co. K.G., consists of T-Mobile USA, Inc. (formerly VoiceStream Wireless) and Powertel, Inc. (together "T-Mobile"). T-Mobile is one of the fastest growing nationwide wireless service providers, offering all digital voice, messaging and high-speed wireless data services to more than 15.4 million customers in the United States. A cornerstone of T-Mobile's strong consumer appeal has been its Get More® business strategy to provide customers with the best overall value in their wireless service so they can enjoy the benefits of mobile communications to Get more from life®. T-Mobile has more than 24,000 employees across the country dedicated to delivering on its Get More® promise to provide customers with more minutes, more features and more service.

Subsidiaries and affiliated companies of the Deutsche Telekom Group today serve more than 97 million mobile customers worldwide, making it one of the top three global wireless carriers. T-Mobile International is the first mobile communications company to offer service on both sides of the Atlantic with a single global brand name and a single digital technology standard, GSM (Global System for Mobile Communications), offering customers the advantage of using their wireless services when traveling worldwide.

The T-Mobile global brand name made its debut in the United States in July 2002, choosing California and Nevada as the first markets in the country to launch its wireless voice and data services. The company successfully transitioned its VoiceStream Wireless brand in its remaining markets in September 2002 and now operates the largest GSM/GPRS 1900 MHz voice and data network in the country in 46 of the top 50 U.S. markets, reaching 253 million people including roaming and other agreements exclusively under the T-Mobile brand name. T-Mobile and its affiliates own licenses to provide service to 95 percent of the U.S. population.

Internationally acclaimed actress and Academy Award® winner Catherine Zeta-Jones serves as T-Mobile's spokeswoman.

Zeta-Jones brings the company's global brand to life by appearing in print, radio and television advertisements showing consumers how they can benefit from T-Mobile products and services and to Get more from life®.

World Class Service One number, One Phone Worldwide

T-Mobile offers consumers and business customers the most advanced mobile communications services available today, including voice, text messaging, and high-speed wireless data services.

T-Mobile operates an all-digital, national wireless network based exclusively on GSM technology. GSM is the most widely used digital standard worldwide, accounting for approximately 72 percent of the total digital wireless market. T-Mobile customers benefit from this global technology platform by having the choice to use their same phone and same phone number when traveling internationally. Consistent with T-Mobile's Get More® promise, T-Mobile's WorldClass roaming rates begin at only 99 cents a minute in approximately 30 European countries and cover more than 135 countries worldwide.

Enhanced Messaging Services - SMS, Instant Messaging & MMS

BST Reply Appendix 000408

T-Mobile offers its customers a variety of options for using Short Messaging Service (SMS) or text messaging and Multimedia Messaging Service (MMS).

SMS: Every T-Mobile customer, regardless of device or rate plan, can send text messages via their handset to friends and family, no matter which wireless service provider they use. In addition, every T-Mobile phone number automatically has a corresponding e-mail address (phonenumber@tmomail.net) allowing customers and their colleagues to use the Internet to send and receive text messages between wireless phones, devices and personal computers.

IM: T-Mobile customers can use the popular AOL® Instant Messenger™ (AIM®) service and the Buddy List™ feature to interact with millions of AIM users worldwide. The company provides AIM service on handsets such as the T-Mobile Sidekick™II device, Motorola V300, Nokia 3595 and 6010 and the Samsung E105 and R225 with AIM directly integrated into the user interface — the fastest, easiest and most convenient way to access the service from a handheld device.

MMS: T-Mobile has upgraded its entire national network to provide MMS services. MMS enables customers to complement their text message with sound, animations and melodies to send to e-mail addresses and compatible handsets. As part of this rich visual communications offering, T-Mobile offers handsets with either integrated or attachable cameras from Motorola, Nokia, Samsung and Sony Ericsson that let customers take a picture and send it to any e-mail address or other MMS-capable phone and then talk about it — all from a single device. Additionally, MMS enables customers to send short video clips from to e-mail or other MMS-capable phones, giving T-Mobile customers a whole new way to communicate.

2.5G GPRS High Speed Wireless Data

T-Mobile leverages its national, standards-based GSM network to provide customers with the latest in mobile communications including wireless data access through its T-Mobile Internet service. T-Mobile's entire national voice network has been upgraded with 2.5G GPRS (General Radio Packet Service) technology, providing customers wireless Internet access at average speeds of 40 Kbps, which rival or exceed standard dial-up wired connections. T-Mobile offers a variety of integrated voice and GPRS capable devices, allowing customers to remotely access the Internet; get their corporate and personal e-mail; keep contacts and calendar information updated on the go; and get popular games, news and information services such as sports scores, stock quotes, horoscopes and games delivered automatically or on demand to their wireless handset or device.

Integrated voice and data devices include PC Internet cards that can be used with a laptop computer or PDA; all in one devices such as the popular BlackBerry wireless handheld e-mail solutions with integrated phone; the Windows Mobile-based Pocket PC Phone Edition, a voice-enabled PDA that features a full-color HTML Internet experience and pocket versions of popular Microsoft software; and, available exclusively through T-Mobile, the revolutionary T-Mobile Sidekick™ device, an innovative all-in-one device with a unique swivel-top form factor that includes a QWERTY keyboard, full-color Web browsing, imbedded AOL® Instant Messenger™ (AIM®) service and attachable camera.

T-Mobile HotSpotSM - Wi-Fi (802.11b) Wireless Broadband Internet Service

T-Mobile complements its existing national GSM/GPRS wireless voice and high-speed data network by providing Wi-Fi (802.11b) wireless broadband Internet access in more than 4,700 convenient public locations in the United States where people already go when they're away from their home or office. By combining the benefits of these networks, T-Mobile offers customers coverage where they want it and speed when they need it, and is uniquely able to provide a comprehensive wireless service offering that meets customers' needs for wireless connectivity. Customers with a Wi-Fi enabled laptop or PDA can access the network on a pay-as-you-go basis or with monthly or prepaid subscriptions. Backed by T-1 connections, T-Mobile HotSpot service is reliable and fast enough to accommodate a broad spectrum of applications from checking e-mail to multimedia videoconferencing. The connection speeds are 40 to 50 times faster than the standard dial-up Internet access. To date, T-Mobile has the

largest Wi-Fi network in the world with more than 4,700 locations including select Starbucks coffeehouses, Borders Books and Music, airports and airline clubs.

Company History

Through the Federal Communications Commission (FCC) auctions of broadband PCS licenses in 1995, 1997 and 1999, Western Wireless Corp. acquired PCS licenses through its VoiceStream Wireless subsidiary. Western Wireless, based in Bellevue, Wash., was formed in 1994 through the merger of General Cellular Corp. and Pacific Northwest Cellular, both led by John W. Stanton. Stanton, also a co-founder of McCaw Cellular Communications, is regarded as a leader and visionary in the wireless industry.

VoiceStream launched the first auctioned PCS license in Honolulu, Hawaii, on Feb. 29, 1996, and continued to aggressively build out its PCS licenses in the western United States, based on the GSM technology platform.

On May 3, 1999, VoiceStream Wireless was spun off from its parent company, Western Wireless. In February and May 2000, VoiceStream completed merger transactions with two other regional GSM service providers, Omnipoint Communications and Aerial Communications. VoiceStream fully integrated the three companies by the end of 2000, converting to a single customer billing platform, implementing standard business practices, and successfully launching the VoiceStream Wireless brand name and Get More® value proposition in all markets including New York, Philadelphia, Miami, Tampa and Detroit.

On May 31, 2001, Deutsche Telekom AG, (NYSE:DT) based in Bonn, Germany, completed its acquisitions of VoiceStream Wireless Corp. and Powertel Inc., adding a U.S. member to its mobile telecommunications subsidiary, T-Mobile International. Other member companies included T-D1 in Germany, One2One in the United Kingdom, MaxMobil in Austria and RadioMobil in the Czech Republic. In April 2002, T-Mobile International began bringing its family of companies together under the T-Mobile global brand name exclusively. This initiative culminated September 3, 2002 with the final transition of the VoiceStream brand name to T-Mobile across the United States. T-Mobile International is now the first and only mobile communications company to offer service on both sides of the Atlantic with a single global brand name and a single digital technology standard, GSM.

Deutsche Telekom's subsidiaries and affiliated companies today serve more than 97 million mobile customers worldwide, making it one of the top three global wireless carriers.

T-Mobile Timeline

2004

- **Tops in Customer Care.** In a national, independent survey, J.D. Power and Associates names T-Mobile No. 1 among all wireless carriers when it comes to customer care.
- **Checking In.** T-Mobile HotSpot announces it will provide high speed Wi-Fi broadband Internet access at Hyatt Hotels and Resorts across the United States. T-Mobile HotSpot provides Hyatt's guests with industry leading service quality and reliability, customer support and innovative features from a brand known worldwide. With the largest carrier-owned Wi-Fi network in the United States, T-Mobile HotSpot is available in more than 4,600 locations.
- **Connecting the HotSpots.** T-Mobile introduces free software that makes locating and using its HotSpot locations simpler and more convenient than ever before. The T-Mobile Connection Manager software enables customers to automatically detect and logon to the T-Mobile HotSpot network, and is the only software program that provides the most up-to-date location information for all T-Mobile HotSpots.
- **Let it ring.** T-Mobile introduces HiFi Ringers, or hi-fidelity ring tones, enabling consumers to customize their phone ring tone with actual voice lyrics and real music clips from their favorite bands.

2003

- T-Mobile is awarded nationwide wireless priority service contract. WPS enables designated national security and emergency

preparedness personnel greatly improved capability to complete wireless calls during times of emergency.

- T-Mobile is the first wireless carrier to introduce video messaging services in the United States, which allows T-Mobile customers to record and send full-motion color video messages, including sound, from a wireless phone.
- T-Mobile and Kinko's announce partnership to offer wireless broadband Wi-Fi Internet access at Kinko's locations nationwide.
- T-Mobile introduces the award winning color version of the T-Mobile Sidekick™. The T-Mobile Sidekick device allows customers to surf the Web, chat using the AOL® Instant Messenger™ (AIM®) service, send and receive e-mail, play games, exchange mobile snapshots and talk it up with friends all from a single device. T-Mobile signs significant roaming agreements with AT&T Wireless, Cingular and Western Wireless to extend GSM/GPRS 1900 MHz coverage for its customers along U.S. highways, rural areas and other key markets. As a result of these agreements, T-Mobile extends its footprint by 10,000 highway miles.

2002

- T-Mobile completes acquisition of MobileStar Network Corp. Extending its network of Wi-Fi (802.11b) wireless broadband Internet access in hundreds of public locations and hot spots, such as airports, airline clubs and select Starbucks coffeehouses, as the coffee giant's exclusive Wi-Fi network service provider.
- T-Mobile expands text-messaging services, allowing customers to send text messages nationwide, no matter which wireless service provider they use.
- VoiceStream officially becomes T-Mobile, and debuts the global brand with launch of service in California and Nevada. Get More® continues as the company's primary consumer and enterprise value proposition. Internationally acclaimed Welsh actress Catherine Zeta-Jones signs on as T-Mobile's global spokeswoman.
- T-Mobile becomes the first wireless carrier to introduce the BlackBerry wireless handheld e-mail solution with integrated phone. It also unveils a wireless PC data card modem for use on its nationwide GSM/GPRS voice and high-speed wireless data network.
- T-Mobile introduces the first Windows Mobile-based Pocket PC Phone Edition for T-Mobile and VoiceStream customers exclusively. The voice-enabled PDA gives customers a true, full-color Internet experience on a mobile device, fully integrated with pocket versions of their favorite Microsoft software applications.
- T-Mobile officially launches its Wi-Fi (802.11b) service under the name T-Mobile HotSpotsm, in more than 4,000 public locations.
- T-Mobile introduces the revolutionary T-Mobile Sidekick™ device, an innovative all-in-one device that lets customers surf the Web, send and receive email, chat using AOL® Instant Messenger™ (AIM®) service, play fun games, take and e-mail mobile snapshots and talk with friends and family.
- T-Mobile launches Multimedia Messaging Services (MMS) across its entire national footprint; introduces color camera phones, starting at under \$100 that let customers take a snapshot, send it to any email address and then talk about it all from a single device when they're on the go.
- T-Mobile announces plans to expand its T-Mobile HotSpot service to 400 Borders Books and Music locations and more than 100 of the most-frequented American Airlines, Delta Air Lines and United Airlines clubs and lounges.
- T-Mobile adds more net customers than any other national carrier in the last two quarters of 2002, ending the year with 9.9 million customers.

2001

- VoiceStream and America Online announce comprehensive services, content and marketing agreement to provide AOL's popular features and services to customers as part of VoiceStream's high-speed wireless Internet service.
- VoiceStream and Powertel, Inc. close their merger agreements

with Deutsche Telekom on May 31, becoming a part of Deutsche Telekom's mobile telephony subsidiary, T-Mobile International.

- VoiceStream launches iStream, the first nationwide GPRS 2.5G high-speed wireless data service, to customers nationwide on Nov. 14.
- VoiceStream ends the year with more than 7 million customers.

2000

- VoiceStream launches wireless Internet service through its personal portal myvoicestream.com.
- VoiceStream Wireless and Aerial Communications complete merger on May 4.
- VoiceStream Wireless and Omnipoint complete merger on Feb. 25.
- VoiceStream enters into a definitive agreement to merge with Deutsche Telekom AG (NYSE:DT) to form the first wireless operator utilizing the GSM standard worldwide.
- VoiceStream and Powertel, Inc. announce plans to merge.
- VoiceStream adds more than 600,000 customers in fourth quarter alone, ending the year with more than 3.8 million customers.

1999

- VoiceStream spins off from its parent company, Western Wireless, to form VoiceStream Wireless.
- VoiceStream Wireless dramatically extends its footprint by announcing mergers with Omnipoint and Aerial Communications. Upon completion of the mergers, the combined company, along with its affiliates, will own licenses to provide service in 23 of the top 25 markets.
- VoiceStream Wireless joins the Nasdaq-100 Index.
- VoiceStream Wireless adds more than half a million new subscribers, ending the year with more than 845,000 customers.

1998

- Western Wireless establishes an alliance with Hutchison Whampoa Ltd., which invests approximately \$325 million in the company.
- Actress Jamie Lee Curtis becomes VoiceStream Wireless' spokeswoman; launches the company's historic GET MORE® marketing program.
- VoiceStream Wireless expands coverage to Phoenix and Tucson late in the year and completes the Seattle system in early 1999.
- VoiceStream Wireless introduces international roaming service and offers first dual-band phone that can be used internationally.
- VoiceStream Wireless grows rapidly; subscribers total 322,400 at year-end and service revenue exceeds \$125 million for the year.

1997

- VoiceStream Wireless opens its first 65,000-square-foot customer care center in Albuquerque, NM, dedicated to servicing VoiceStream customers.
- VoiceStream Wireless expands its coverage to Denver and El Paso and ends the year with 128,600 subscribers.

1996

- Western Wireless completes its initial public offering and two bond offerings to raise over \$600 million to fund the growth of its PCS and cellular businesses.
- Western Wireless launches the VoiceStream Wireless system in Honolulu; Salt Lake City; Albuquerque; Oklahoma City; Portland, Ore.; and Des Moines.

1995

- Western PCS Corp. (predecessor to VoiceStream) is successful bidder for PCS licenses in Portland, Honolulu, Albuquerque/El Paso, Des Moines, Oklahoma City and Salt Lake City.

1994

- General Cellular and Pacific Northwest Cellular merge to form

Western Wireless.

- Western PCS formed to bid in FCC PCS auction.

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BELLSOUTH APPENDIX

TAB 19

October 5, 2004, Tuesday

SECTION: TODAY'S NEWS

LENGTH: 914 words

HEADLINE: VoIP Providers Deny Price Cuts Mean Start of Price War

BODY:

VoIP providers dismissed some analysts' assumptions that price cuts by Vonage and AT&T last week were the opening shots in a price war in the nascent market. "Price war happens when a market is mature," an AT&T spokesman said, noting that wasn't the case with VoIP, which still has fewer than one million subscribers. AT&T announced last week it would cut the price for its CallVantage service by \$5 a month to \$29.99. Vonage reduced its price to \$24.99 the same day.

"It is not a price war until others follow," a Time Warner Cable spokesman said. He said his company didn't plan to reduce its prices in response. But Frost & Sullivan VoIP Program Leader Jon Arnold said AT&T and Vonage price cuts meant tougher competition: "When a big player lowers its price, everybody has to respond." He said the AT&T and Vonage announcements would probably spur other VoIP providers to reduce prices, unless they offered additional features: "In some sense it is a price war." But he said companies like Primus, which offers \$19.95 monthly VoIP service, will likely maintain their prices. He said for AT&T, the cut was "step number one to try to get VoIP startups off the market as soon as [it] can." He said he expected smaller VoIP providers to be priced out of the market in the next 2-3 quarters. "Nobody knows how low prices can go," he said.

The AT&T spokesman wouldn't elaborate on reasons for the price cut, but said: "I can't say competition doesn't have anything to do with it." He said AT&T "didn't have to [cut prices] but elected to do so because of our marketing plan." He said the idea was "to get customers to buy CallVantage" as the holiday season approached. He said when AT&T introduced VoIP service, the plan was to market it for \$19.99 a month the first 6 months, and then move to \$34.99. "But we decided to go to \$29.99 instead," he said, noting that the decision had been made "weeks ago." He said CallVantage would remain profitable even after the price cut, but refused to speculate on whether the new price left room for further price cuts. Arnold said IP generally was "a relatively high margin service," and companies like AT&T could drop another \$5 and remain profitable.

Arnold said AT&T dropped the price to "initiate a more aggressive growth for itself and put more pressure on Vonage." But he said it was unlikely AT&T would drive Vonage out of the market, because "Vonage is well-funded, and they have done their chunk of investment to get customers." He said Vonage was "in a position of survivor," because "it has built a strong brand" and "its operations costs are much more reasonable and sustainable... It's late for others to do what Vonage has done." Arnold said AT&T was in the VoIP market "not to make money" but to "develop market leadership" and "catch more customers" before cable companies hit the market with bundled offers late this year or early next. He said in the long run, it would be "logical" for AT&T to respond to cable and RBOC competition by bundling VoIP and wireless services.

Meanwhile, Verizon and Time Warner officials told us their companies didn't plan to cut VoIP prices in response. "We don't have any plans to change our pricing in the near future," a Verizon spokeswoman said, saying her company had "a compelling offer" for its DSL customers. Verizon sells its DSL for \$29.95 and VoiceWing service for \$29.95 a month for the first 6 months and \$34.95 thereafter. For those who don't buy broadband from the company, VoiceWing is available at \$34.95 a month for the first 6 months and \$39.95 after that. "Our pricing is good," the spokeswoman said: "Consumers look at the entire cost of VoIP, which includes broadband." A spokesman for Time Warner Cable, which offers its digital calling at \$39.95 a month, said his company also had "no plans to change the pricing structure."

Communications Daily, October 5, 2004

Arnold said cable VoIP providers would probably have to cut their pricing in the areas where AT&T and Vonage are "strong." But he said where there's no overlap, cable will leave it as it is, because "there is no competition." He said AT&T and Vonage price cuts wouldn't affect RBOCs, which he said "are not doing VoIP in a big way yet."

The VoIP features and service reputation are a good basis for competition, industry officials agreed. The Verizon spokeswoman said VoiceWing offered some features that its competing services didn't, such as address book synchronization. "VoIP market is getting extremely competitive and consumers should look at the service reputation," she said. "Verizon reputation is a great asset." The Time Warner spokesman said his company offered VoIP services "identical" to traditional wireline. "Our services are not identical" to those of AT&T and Vonage, he said, noting that Time Warner offered E911, was fully CALEA-compliant and used its proprietary network rather than the public Internet. He said cable companies providing VoIP had a marketing advantage because they could bundle phone and broadband with video. "We won't get into the price war," he said.

Looking ahead, the Verizon spokeswoman said competition would be based on a "combination" of price and features. "Now people are price-focused, but once they become more familiar with VoIP service, they will start looking at features," she said. "At Verizon, we are focused on the overall value." -- Susan Polyakova

LOAD-DATE: October 4, 2004

BELLSOUTH APPENDIX

TAB 20

SWITCHING THRESHOLD PROPOSALS

SPONSORING PARTY	THRESHOLD PROPOSED	OTHER CONDITIONS
Ionary Consulting	150-200 CLEC lines per wire center	Can obtain new customers via UNE-P
NTS Comm.	500 CLEC local dial tone lines per wire center	Once threshold met, carrier begins collocation deployment; conversion from UNE-P 160 days following collocation deployment
Michigan-Based CLEC Coalition	UNE-P: 500 CLEC voice-only lines per wire center Switching: Over 10,000 CLEC DSO lines in any LATA	Once threshold met, CLEC deemed capable acquiring collocation facilities and UNE-P access ceases in qualifying wire center Rural switching exemption in rural area defined by 47 C.F.R. 54.5
Assoc. for Local Telecomm. Svcs ("ALTS")	1,344 CLEC lines per wire center	Once threshold met, no additional lines would qualify for UNE-P pricing, carrier begins collocation deployment. Conversion from UNE-P 27 months after threshold is met
PACE Coalition	1,500 CLEC lines per wire center	Access to unbundled local switching required for any Eligible Telecommunications Carrier even if threshold met; supplements 27 month transition period from the <i>Triennial Review Order</i> with additional requirements
ATX Comm. Inc.; Blue Vista Phone Service	2,500 CLEC lines per wire center	Unbundled access to local switching for residential customers continues 3 years from effective date of new rules; thereafter, access if requesting carrier serves fewer than 2,500 lines
Supra	3,000 CLEC lines per wire center	Additional criteria; including, but not limited to, hot cut rates; no need for threshold if there are two other non-ILEC competitive providers of mass market switching in that wire center
ACN Comm. Svcs.	3,500 CLEC lines per wire center	Once threshold met, 18 month transition period
Dialog Telecomm. Inc.	Seeks access to unbundled local switching in wire centers with fewer than 25,000 residential DSOs where fewer than 8,000 residential DSOs are served by all competitors; yet notes it could achieve "breakeven" at 2,000 lines per wire center	Once threshold met, 24 month transition period If competitor lines fall below 8,000 threshold within 18 months, access to unbundled local switching reinstated. CLECs that are small businesses entitled to UNE-P access 3 years from effective date of new rules, regardless of line density
National ALEC Assoc.	CLEC must achieve 10,000 lines per ILEC, per state	
USA Telephone	Access to unbundled local switching in wire centers with 50,000 or fewer lines	Rural carveout for CLECs serving residential and small business customers